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Developing the last mile of a parcel delivery service concept for consumers

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Laurea University of Applied Sciences **Abstract**
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The purpose of this thesis was to develop the last mile of a parcel delivery service concept for consumers with DHL Express used as the case company. The aim was to study how the current last mile of a parcel delivery service is being operated, what kinds of characteristics does it include and what are the differences between consumers' and company's perceptions of the service.

The structure of the thesis consists of an introduction to the thesis, presentation of the case company and logistics, theoretical framework, research methodology, collection and analysis of the empirical data, empirical results, and conclusions. The theoretical framework includes concepts that are related to logistic services, introductions of service concepts, service process, and business process, and descriptions of user involvement, user research, user experience, co-creation and value co-creation.

The empirical research of the thesis was conducted by following a service design process. The main empirical data collection method was a sentence completion form. Observations, contextual interviews and a design workshop were used as complimentary methods. Among 40 consumers who were approached with the sentence completion form, 23 decided to complete it. The empirical data was analysed through content and statistical analyses. During the creation and reflection phases, a SWOT analysis and a storyboard were used.

As an outcome, an improved last mile of the DHL Express parcel delivery service concept was created and presented to the company together with recommendations for desirable actions. The results of this investigation revealed that the consumers are mostly satisfied with the service concept. However, these are certain aspects of the concept that will need to be improved. The main development targets are related to both information flow and the actual delivery of goods.

Following the results of this thesis, DHL Express is now starting the implementation phase and putting the recommendations for improvement into practice. Some of the smaller changes have already been made and the more significant ones will be first presented to the headquarters in order to receive the necessary approval.

Keywords consumer logistics, e-commerce, last mile logistics, parcel delivery service

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Kuljetuspalvelukonseptin ”viimeisen mailin” kehittäminen kuluttajille sopivaksi

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Opinnäytetyön tarkoituksena oli kehittää kuljetuspalvelukonseptin ”viimeistä mailia” kuluttajille sopivaksi. Esimerkkiyrityksenä oli DHL Express. Tutkimuksen pääongelma oli selvittää, miten nykyisen kuljetuspalvelukonseptin ”viimeinen maili” on toteutettu, millaisia ominaisuuksia se sisältää ja miten yrityksen ja kuluttajien käsitykset palvelusta eroavat toisistaan.

Opinnäytetyön rakenne koostuu johdannosta, yrityksen sekä logistiikka-alan esittelystä, teoreettisesta viitekehyksestä, tutkimusmenetelmistä, tutkimusaineiston keräämisestä ja analysoinnista, tutkimustuloksista sekä johtopäätöksistä. Teoreettinen viitekehys sisältää käsitteet logistisista palveluista, palvelukonsepteista, palvelu- ja liiketoimintaprosessista sekä kuvauksen käyttäjätutkimuksesta, käyttäjäkokemuksesta ja yhteiskehittelystä.

Opinnäytetyön empiirinen osa toteutettiin palvelumuotoiluprosessin mukaisesti. Aineisto kerättiin lauseentäydennyslomakkeen avulla. Lisäksi hyödynnettiin havainnointia, avoimia haastatteluja sekä suunnittelutyöpajaa. Lauseentäydennyslomake esitettiin 40 kuluttajalle, joista 23 päätti vastata kyselyyn. Empiirinen aineisto analysoitiin sisältö- sekä tilastollisen analyysin avulla. Palvelumuotoiluprosessin myöhemmissä vaiheissa käytettiin myös SWOT-analyysia sekä Tarinataulua.

Opinnäytetyön tuloksena kehitettiin paranneltu versio DHL Expressin kuljetuspalvelukonseptin ”viimeisestä mailista” ja esiteltiin se yritykselle yhdessä suositeltujen toimenpide-ehdotusten kanssa. Tutkimuksen tulokset paljastivat, että kuluttajat ovat suurimmaksi osaksi tyytyväisiä palvelukonseptiin. Siitä huolimatta muutamia palvelukonseptin osia on syytä kehittää. Tärkeimmät kehityskohteet liittyvät tiedonkulkuun sekä paketin konkreettiseen toimitukseen.

Opinnäytetyöstä saatujen tulosten perusteella DHL Express on nyt aloittamassa kehitysideoiden toteuttamisvaiheen. Osa pienemmistä muutoksista on jo tehty, mutta suuremmat ja merkityksellisemmät ehdotukset tullaan ensin esittelemään pääkonttorille, jotta niille saadaan tarvittavat hyväksynnät.

Asiasanat e-kauppa, kuljetuspalvelu, kuluttajalogistiikka, logistiikan ”viimeinen maili”, paketti

Contents

1 Introduction

As companies and consumers increasingly purchase goods online, the demand for express delivery services grows (First Research 2013, 7). Furthermore, the growth of online retail sales has influenced the logistics industry for the past ten years and the trend is expected to continue at least on a similar level during the next few years. Traditionally, it was the consumers themselves, who performed the last mile logistics. In an e-commerce context, the set-up is completely different as consumers purchase goods online and the order fulfilment is being handled by the e-commerce provider. (Delfmann et al. 2002, 203.)

The increased popularity of e-commerce is already visible on the streets due to the growing number of delivery vehicles in residential areas. As home deliveries become more and more common, the amount of failed delivery attempts rises. Express delivery companies require consignee's signature in order to deliver the shipment, and often the consumers are not at home when the delivery attempt occurs. A failed delivery attempt leads to increased delivery costs as the shipment needs to be re-delivered or even returned to the shipper. (Weltevreden 2008, 639.)

Responding to the increased demand of small-sized frequent shipments incurred by e-commerce has become one of the biggest challenges for logistics express delivery companies. A successful delivery of shipments to consumers distributed across large geographical areas will require re-designing of the existing distribution network including terminals, hubs, and the network paths that connect them. Many express delivery companies that handle e-commerce shipments have, for example, established mega-scale hubs to process a high volume of shipment flows. Maintaining cost efficiency and a high level of service in the distribution system is crucial for the express delivery companies to remain competitive in the e-commerce business. As a consequence, the competition becomes tighter and all of the main service providers in the express delivery industry are targeting to meet the new requirements of consumers. (Lim & Shiode 2011, 732-733.)

DHL Express is one of the leading express delivery companies in the world. The changes that are currently re-shaping the whole express delivery industry have been fully recognised by the company. In order to achieve a competitive advantage and even to maintain the existing position as a market leader, the company will need to adjust the last mile of its existing parcel delivery service concept. DHL Express' goal is to serve the consumers better. This thesis is one of the steps DHL Express has decided to take in a process to improve and develop the last mile issue.

1.1 Background for the research

The idea to investigate the last mile of a parcel delivery service concept for consumers rose from the author's personal interests and from a constant discussion about this topic both in the case company and in the media. The most important influencer was, however, the positive and supportive feedback which the management board and other employees of DHL Express gave during the initial discussions. They clearly shared the interest towards this topic and considered that investigating it from the consumer's point of view would be highly beneficial for the company. DHL Express has not involved consumers in any of their previous development projects related to the last mile issue.

The demand of express delivery services for consumers has grown rapidly due to the increased popularity of e-commerce. For example, in J.P. Morgan's (2011, 12) annual guide, Goldman Sachs has predicted that global e-commerce sales will reach $963 billion by 2013, growing at an annual rate of 19.4 %. DHL Express' services have originally been developed for business customers and it is, therefore, justifiable to assume that not all of the service features are suitable for consumers. The final outcome of the thesis will contain suggestion of desirable actions which the author has identified during the research process. The actions will be chosen based on the company's need to serve the consumers better and thus to meet the expectations of business customers that operate in the e-commerce field.

From the author's point of view, it is interesting to gain deeper insights from the postal and courier activities industry (Statistics Finland 2008, 53) and to have the opportunity to introduce service design methods to the case company. Because the author has worked in customer service and sales departments for several years, she has a lot of experience from the support functions but less from the operational department. In order to expand her professional expertise in logistics, the author finds it important to understand both parts of the process.

The results of this study will provide important insight for the case company's operational department. The received information will help them to set targets and focus on the most critical aspects concerning the last mile of a parcel delivery service concept for consumers in a way that will benefit both the consumers and the case company itself. The outcome of the research is an improved last mile of a parcel delivery service concept for consumers. The development will bring additional value for the consumers and decrease unnecessary operations from the case company's point of view. Therefore, the improved service concept will be beneficial for both of the parties.

1.2 The purpose of the thesis, main research questions and sub-questions

The purpose of this thesis is to develop the last mile of a parcel delivery service concept for consumers. DHL Express is used as the case company for this study. As the company has previously operated only in business-to-business context, there could potentially be several different touch points that should be re-designed in order to meet the needs of consumers. A further objective is to identify aspects of the overall last mile of a parcel delivery service concept for consumers that are highly valued by the consumers but disregarded by the company and vice versa.

Through the vision of being "the Logistics Company for the World", DHL Express indicates its willingness to serve both business customers and consumers. That in turn has a direct impact on the development targets and the priority of them. Additionally, e-commerce being one of the fastest growing industries, it is important to show an interest towards the field and start searching for competitive advantages.

This study will be carried out by involving user experience and co-creation methodologies. The author has chosen these methodologies, because they will provide new insight about the subject and have not been used in any previous projects run by the case company. In some of the previous studies (Punakivi et al. 2001, 428), researchers have used, for example, simulations and mathematical calculation models when analysing last mile delivery concepts. The similar nature of previously used research techniques was raised by Punakivi et al. (2001, 437) and a suggestion was made by them to involve consumers in the further researches.

The main research question is: "How to develop the last mile of a parcel delivery service concept for consumers?" DHL Express Finland is being used as a case organisation.

Sub-questions for the theoretical parts of the study include the following:

- What are logistics services (Chapter 3)?
- What are the characteristics of parcel delivery services (Section 3.3)?
- What are the differences between business customers and consumers (Section 3.5)?
- What is a service concept (Section 4.1)?
- What is user research (Section 5.2)?
- How is user experience being determined (Section 5.3)?

Sub-questions for the empirical parts of the study include the following:

- What kind of a concept is DHL Express' existing parcel delivery service for consumers (Section 7.2)?
- What are the characteristics of the last mile of DHL Express' parcel delivery service concept (Section 7.2)?
- What are the differences between consumers' and company's perceptions of the service (Section 7.4)?

1.3 Limitations and outline for the study

The study is limited to DHL Express Finland and does not concern any other DHL subsidiaries or country organisations. The existing service portfolio of DHL Express Finland is significantly different from the other business units' and the last mile supply chain procedures vary between the country organisations worldwide. Therefore, the results of the study cannot as such be utilised for their benefit.

DHL Express' service portfolio consists of air and road express services. In Finland, the last mile of road express services has been outsourced to a subcontractor. Due to the outsourcing, the last mile of road express services is completely different when compared to the last mile of air express services. Therefore, the road express services have been excluded from the scope of this study.

In terms of different functions that are involved in the last mile of the parcel delivery service concept, the main focus will be on the operational side. In other words, the study will concentrate on the concrete steps that occur during the last mile of a parcel delivery service concept and the customer service touch points that are related to it. However, the clearance functions will be disregarded due to their different nature and extent. The author would recommend a separate project to be carried out in relation to the clearance functions.

DHL Express Finland is currently investigating possible development ideas regarding the last mile of their parcel delivery service concept for consumers, and there are a few separate projects ongoing that could bring additional value to the consumers. Interestingly though, none of these projects are being co-produced or co-created together with the consumers. As a consequence, this study will focus on the user experience aspects and consumers will be involved in the project. The other ongoing projects will be disregarded from the scope of this study and they will proceed as separate, independent case studies.

1.4 Existing research of the theme

There are many existing theses related to the logistics sector, delivery services and co-design of services. Three of the theses were Master's theses and the rest of them were Bachelor's theses. These studies have been listed in Table 1 in an alphabetical order.

Author, Year	Title of the Thesis
Logistics sector	
Andrejev Katja, 2011	DHL Freight (Finland) 2020 – Foresight study on Logistics in South-Eastern Finland
Gyasi-Mensah Albert, 2012	Green Solutions for Logistics Customers – Case Study: DHL
Heikkinen Susanna, 2012	Future Studies and Forecasting in Logistics
Mutanen Jari, 2010	Vastaanottotoiminnan ja välivarastoinnin prosessikuvaus DHL Supply Chain (Finland) Oy:n Vaasan Yksikössä
Delivery service	
Beilinson Joni, 2013	Enhancing Customer Perceived Value in Home Deliveries - Case: Customer Company X
Halttunen Joonas, 2012	Improving the Process for Mail Delivery Services
Co-Design	
Nousiainen Tiina & Pessa Johanna, 2012	Service Co-Design in the Finnish Municipal Sector - Case: Early Education Services

Table 1: Previous studies discussing the theme

The aim of Andrejev's (2011) Bachelor's thesis was to investigate, how to strengthen the competitiveness of Southern-Eastern Finland's logistics by indentifying the trends and innovations that might influence the transportation business in 2020. As a result, Andrejev (2012) created three different scenarios and drew a conclusion that factors such as local politics, technological innovations related to customs procedures and the situation in Russia would be most likely to affect the future of logistics.

Heikkinen (2012) focused on analysing the correspondence between strategy and forecasting. The aim of Heikkinen's (2012) Master's thesis was to find out how the future's logistics companies will be able to operate in Finland and how would the companies benefit of the future research. As a result, Heikkinen (2012) identified both changes that could have an effect on the logistics industry and the key features to maintain competitive advantage. The identified changes were related to environment and security issues.

The aim of Gyasi-Mensah's (2012) Bachelor's thesis was to investigate, how DHL, as an international logistics corporation, takes care of its environmental responsibilities. As a result, Gyasi-Mensah (2012) drew a conclusion that DHL conducts both strategic and tactic actions in order to demonstrate their green values. Gyasi-Mensah (2012) also found out that DHL offers environmentally friendly services for their customers.

Mutanen (2010) focused on documenting the material reception operation in DHL Supply Chain's unit in Vaasa. The aim of Mutanen's (2010) Bachelor's thesis was to develop information that could be used in audits and as a training material for new employees. As a result, Mutanen (2010) created a clear description of the material reception process.

The aim of Halttunen's (2012) Master's thesis was to create a proposal of a model and develop recommendations for the Finnish postal company in order to improve the company's existing process of mail delivery services. Halttunen (2012) concentrated on indentifying possible cost savings and took into consideration the company's existing tools to ensure their usability during the implementation phase. As a result, Halttunen (2012) developed a proposal and recommendations, including managerial implications.

Beilinson (2013) researched the concept of service quality in the context of home delivery of physically large consumer goods. The aim of Beilinson's (2013) Master's thesis was to identify the key value drivers of different customer segments in order to study if certain elements of the service process could be used to modularize the service package. Beilinson's (2013) conclusion was that there are various parts in the service process where modularization possibilities can be found.

2 Logistics industry and the case company – DHL Express Finland

DHL Express is an international logistics company and one of the four entities forming a brand called DHL. The other three entities are DHL Freight, DHL Global Forwarding and DHL Supply Chain. All of the entities operate under control of their own divisional headquarters and belong to the Deutsche Post DHL Corporation. The corporation offers integrated services and tailored, customer-focused solutions for managing and transporting letters, goods, and information. (DHL Express 2013.)

DHL Express has specialised in providing international courier and express delivery services to both business customers and consumers. It has a network reaching more than 220 countries and territories through 500 airports and approximately 100 000 employees worldwide. In addition, DHL Express has more than 36 500 Service Points where shipments can be picked-up or dropped-off. The company's core products are international air and road express services. DHL Express' turnover was 12.8 billion Euros in 2012 and based on the Market Intelligence 2012 study, annual reports and desk research that are shown in Figure 1 the company is a market leader in the European international express market. (DHL Express 2013; DPDHL 2013.)

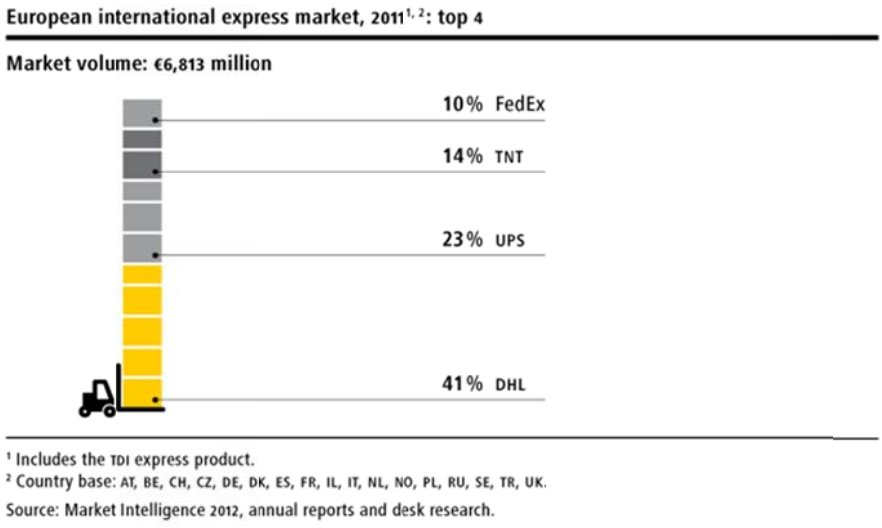

Figure 1: DHL Express Market Share in Europe (DPDHL 2013)

DHL Express Finland has approximately 250 employees. The company's headquarters and an international gateway are located in Helsinki-Vantaa airport. In addition, the company has two domestic terminals that are located in Turku and Tampere. DHL Express Finland's service portfolio includes the following services:

- DHL EXPRESS 9:00
- DHL EXPRESS 12:00 / DHL IMPORT EXPRESS 12:00
- DHL EXPRESS WORLDWIDE / DHL IMPORT EXPRESS WORLDWIDE
- DHL ECONOMY SELECT / DHL IMPORT ECONOMY SELECT
- DHL DOMESTIC EXPRESS
- DHL GLOBALMAIL
- DHL SAMEDAY
  (DHL Express 2013.)

Amongst these services, DHL IMPORT EXPRESS 12:00 and DHL IMPORT EXPRESS WORLDWIDE are in scope of this study. Both of these services are designed for import shipments to Finland and contain a service promise of a door-to-door delivery. Another import service, DHL IMPORT ECONOMY SELECT, will be left out because the final delivery part has been outsourced to a subcontractor. In case of a failed delivery attempt, the consumer can pick his or her parcel up from the subcontractor's warehouse, and not from DHL Express Service Point (Appel 2013).

2.1 Logistics industry in Finland

Various statistics and studies indicate that there are between 13 000 and 23 000 logistics companies in Finland which employ up to 130 000 people (LOGINFO 2013). In order to support the industry, some of the local logistics unions have created a web page, kuljetusala.com, providing information about logistics professions, education and schools. There anyone who is interested in the industry can find relevant information, videos and FAQ's. (Economic Information Office 2012.)

In 2011 the logistics costs of manufacturing and trading companies were in average 12.1 % of turnover, and the share of transportation and packing costs was approximately 4.6 % (Ministry of Transport and Communications 2012). For example, in Central Europe, the logistics costs are about 4-8.5 % of turnover which is significantly less (Kuljetusopas 2013). This is due to geographical factors, such as Finland's location in the edge of Europe, that are closely related to the business environment of express delivery industry and are changing slowly. In Finland, 90 % of goods are transported by road because of long distances and scattered houses. As a result the transportation kilometres per product are the highest in Europe. (SKAL 2013; Kuljetusopas 2013.)

In terms of performance, Finland has been rather successful and came in 3rd in Logistics Performance Index evaluation in 2012, right after Singapore and Hong Kong. Compared to the previous ratings, in 2010 Finland was in 12th position and in 2007 in 15th position, this latest

result is a giant leap forward. Among the six categories that were rated, there were two where Finland was ranked in 1st position: Logistics quality and competence and Tracking & Tracing. It is clear that Finland has been able to achieve a high level of logistics services and that the reliability of supply chains is on a good level. (The World Bank 2012.)

In the express delivery industry, the biggest share of the market has been divided between so called Freight Integrators. The Freight Integrators are courier or express delivery companies who arrange "time definite" door-to-door transportation in their own network, where each movement of a shipment is under their control. This procedure allows changing, for example, the destination or receiver's address during the transportation. In Finland DHL, FedEx, UPS and TNT are examples of globally operating Freight Integrators. (Logistiikanmaailma 2013.)

2.2 DHL Express' operational functions

Operational functions are the heart of a parcel delivery service and the people who work as couriers are most often seen as the only concrete aspect of it. However, behind the scenes there are thousands of people, hundreds of vehicles, a dozen facilities, and an enormous network that together form the so called operational functions. In order to provide the express delivery service in accordance with the service promise, all of these factors need to work seamlessly. Managing a global network of this size requires strict policies and unified processes as well as a lot of co-operation between different stakeholders. (Appel 2013.)

The operational functions have been chosen as the main target area, because the current practices are not satisfying for the company or the consumers. From the company's point of view, the main issues are related to unnecessary work and extra costs. Surprisingly enough, the same could be said also from the consumer's point of view. Due to a failed delivery attempt, for example, the consumer needs to contact the customer service and that is solely unnecessary work for them which is additionally causing small amount of extra costs, both money and time wise. (Appel 2013.)

There is only one touch point between the operational department and consumers and that is the actual delivery of a parcel. Before the first delivery attempt, the consumers have only tracked their parcel online and, at most, discussed with a customer service agent. They have not made the decision, which courier company should be used nor have they negotiated about the costs of the delivery service. They have only made the decision to purchase an item from an online store, and the available delivery service(s) are purely a necessity. For these reasons, either succeeding or failing in this touch point creates the basis for the overall opinion that the consumer forms about the service provider as a company. Therefore, it is the most important single touch point for the entire service concept. (Appel 2013.)

2.3 DHL Express' customer service

DHL Express Finland provides personalised customer service from Monday to Friday during business hours via telephone, email or web enquiries. Most of the contacts come from business customers but the number of consumer contacts has increased significantly during the last two years. The main reasons for contacting the customer service vary from tracking and tracing to price related questions, covering approximately 80 % of all inquiries. Business customers most often contact customer service for price inquiries, whereas the consumers commonly request changes to the delivery details. (Moberg 2013.)

In order to serve its customers efficiently, DHL Express has divided the Customer Service into three separate departments. Contact Centre agents' main focus is on the incoming calls, Customer Care agents take care of all the tracking and tracing requests and Quality Centre handles claims and complaints. This division allows each agent to concentrate on certain types of requests. That in turn makes the agents specialists of this specific field and ensures that customers receive professional service. From the employees' point of view, the organisation structure opens various career paths for them and encourages people to develop themselves further and move forward in their careers. (Moberg 2013.)

Consumers contact customer service most often due to special delivery arrangements, such as requests to change the delivery address. There are many reasons behind this, but only the most significant ones are discussed here. First of all, consumers are usually forced to use their home address as the delivery address because the payer address and delivery address are required to be the same for safety reasons. However, logistic companies like DHL Express operate mainly during weekdays and business hours, when consumers are at work. If the consumer is not at home, the courier will leave a note at the door, advising him or her to contact DHL Express' customer service in order to agree a new delivery time. In some buildings the main entrances are locked at all times and the courier is unable to get to the consumer's front door. In these cases, the consumer will find out about the failed delivery attempt either via DHL Express' online tracking system or via phone call from DHL Express' customer service. In another example case the consumer is aware of the upcoming situation and contacts the customer service prior the first delivery attempt to schedule a new delivery time or change the delivery address. (Moberg 2013; Appel 2013.)

2.4 Customers of DHL Express Finland

As DHL Express is a market leader in the express delivery services field in Finland, the number of its customers is high. Most of the customers are companies involved in international trade, who are shipping goods to other companies or their own factories, warehouses and offices. Therefore, most of the parcels DHL Express delivers are within business-to-business context. However, due to the increase of e-commerce, the proportion of business-to-consumer shipments is also rising. In the beginning of 2013, the percentage of business-to-consumer parcels reached an all time high, being approximately 20 %. Nevertheless, because the freight charge is still being paid by the company, who sold the goods to the consumer, the nature of the business relationship between DHL Express and a consumer is different. (Appel 2013.)

DHL Express segments its business customers into three categories based on the revenue they are spending. These segments are Key Accounts, Field Sales Accounts and Direct Sales Accounts. The customers in each group are being contacted regularly, and the business relationships are maintained carefully. As a consequence, these customers have a possibility to give feedback about the service and even negotiate modifications to it. However, this is not the case with consumers. In the current situation, consumers interact with the company only occasionally if even then. And when they do, the discussion is about the whereabouts of a certain parcel or the upcoming delivery attempt. There has not been any interactive channel for their thoughts or ideas of the perceived service, other than a standard feedback template. (Moberg 2013.)

3 Logistics services

This Chapter includes a description of the concepts that are related to logistic services including business-to-consumer delivery services. A logistic service consists of various sub-categories which will be explained next.

3.1 Types of logistics services

The term logistics has originally been applied to the task of organising the supply of weapons, equipment, and food to distant military forces (Lovelock 1996, 270). Only during the 1980s it became a broader business term. Main distinctions between logistics and physical distribution not only involved a more organised perspective on physical activities but additionally the capture, storage, and retrieval of relevant information. (Lovelock 1996, 270.)

The Council of Supply Chain Management Professionals (CSCMP 2013) has defined logistics as functions that include the planning, implementation and control of the flow and storage of goods, services and related information. According to Lovelock (1996, 270), the definition of logistics includes "the movement and storage of goods together with associated information flows from the beginning to the end of the supply chain". Sink et al. (1996, 41) in turn involved third-party logistics buyers in their research and created a list of activities that the buyers associated with third-party logistics (Table 2).

Function	Activities
Transportation	Shipping, forwarding, (de)consolidation, contract delivery, freight bill payment/audit, household goods relocation, load tendering, brokering
Warehousing	Storage, receiving, assembly, return goods, marking/labelling, kitting
Inventory management	Forecasting, location analysis, network consulting slotting/layout design
Order processing	Order entry fulfilment
Information systems	EDI/VANS, routeing/scheduling, artificial intelligence, expert systems
Packaging	Design, recycling

Table 2: Activities associated with contract logistics in the USA (Sink et al. 1996, 41)

Hofer and Knemeyer (2009, 187) argue that logistics services are supportive services for physical production. Based on several currently used definitions, Croucher et al. (2006, 6) have formed a common and modern definition that describes logistics as "the efficient transfer of goods from the source of supply through the place of manufacture to the point of consumption in a cost-effective way whilst providing an acceptable service to the customer".

3.2 Elements of logistics services

Previous studies (Hutt & Speh 2010, 347) identified different elements of logistics service performance that are important for business-to-business customers (Table 3). These elements vary from delivery time to value-added services. Another aspect is that the elements of logistics are providing added-value to a product because it is being made available for the final user (Croucher et al. 2006, 13).

Elements	**Description**
Delivery time	The time from the creation of an order to the fullfillment and delivery of that order encompasses both order-processing time and delivery or transportation time.
Delivery reliability	The most frequently used measure of logistics service, delivery reliability focuses on the capability of having products available to meet customer demand.
Order accuracy	The degree to which items received conform to the specification of the order. The key dimension is the incidence of orders shipped complete and without error.
Information access	The firm's ability to respond to inquiries about order status and product availability.
Damage	A measure of the physical conditions of the product when received by the buyer.
Ease of doing business	A range of factors, including the ease with which orders, returns, credits, billing, and adjustment are handled.
Value-added services	Such features as packaging, which facilitates customer handling, or other services such as prepricing and drop shipments.

Table 3: Common Elements of Logistics Service (Hutt & Speh 2010, 347)

It is characteristic for services that customers are able to participate in the service processes, and are crucial to the co-creation of value with service providers. However, this kind of interactive relationship between service provider and customer has not been typical in the logistics sector. The customer is often geographically distant from the service provider, because the purpose of the service is to transport goods from the direct customer (e.g. a

factory) to the customer's customer (e.g. a retail store) via a chain of service providers. (Rajahonka 2013, 4.)

3.3 Parcel delivery service

The current literature does not provide a uniformly used definition of parcel delivery service. There is, however, a clear understanding of its meaning because many companies are considered as being parcel carriers, and their service offerings are different from other transportation providers. Based on a widely used description, a typical parcel carrier transports shipments that are sufficiently small to be handled by one person without aid, but which are often larger than a normal letter. The most commonly known parcel carriers in Europe include DHL Express, UPS, TNT Express and FedEx. (Li 2002, 45.)

According to First Research (2013, 2), the global parcel business, also known as the express delivery industry, generates revenues of approximately $180 billion per year. In their research, the industry consists of companies that provide express delivery and pick-up services for documents and parcels in domestic and international areas. A typical express shipment is defined as being small enough to be handled by a single person without usage of any special equipment. Delivery is most commonly same-day, next-day or one-to-three-day due to the time-sensitive nature and content of the shipments, such as biological substances, spare parts or medical supplies. (First Research 2013, 2.)

Lovelock (1996, 554) defined the express parcel portion of the freight transport industry as a service "whose core product involves the speedy transportation and delivery of customers' packages, typically ranging in size from an envelope up to a 68 kg box". He also uses a term "time-definite logistics industry", in which information networks are equally important as the physical distribution networks of aircraft, trucks, sorting hubs and high-tech warehouses. The companies operating in the industry distribute through their own networks and use local subcontractors for pick-up and delivery. All in all, the industry is highly equipment-intensive with fixed costs dominating and the variable cost of transporting packages relatively low. (Lovelock 1996, 554-555.)

Moving hundreds of thousands of shipments each day requires certain procedures in order to facilitate reasonable costs. Therefore, these small parcels need to be combined into larger units based on the routing and final destination. This procedure basically defines how parcel carriers operate. For example, a simple parcel delivery service that uses only road transport operates as follows. Parcels are normally picked up by a courier with a van, at the shipment's origin, and there will be hundreds of pick-ups before the vehicle returns to a hub or terminal. This is the origin hub for the shipment. In the hub, the shipments are sorted by outbound line

haul truck. Once the loading is complete, the truck leaves for the next hub or terminal in the parcel's route. There the truck will be unloaded and the parcels sorted again. In case this is the destination hub, the parcels will be sorted to courier vans for delivery. These typical steps of a parcel delivery service are presented in Figure 2. (Li 2002, 27-28.)

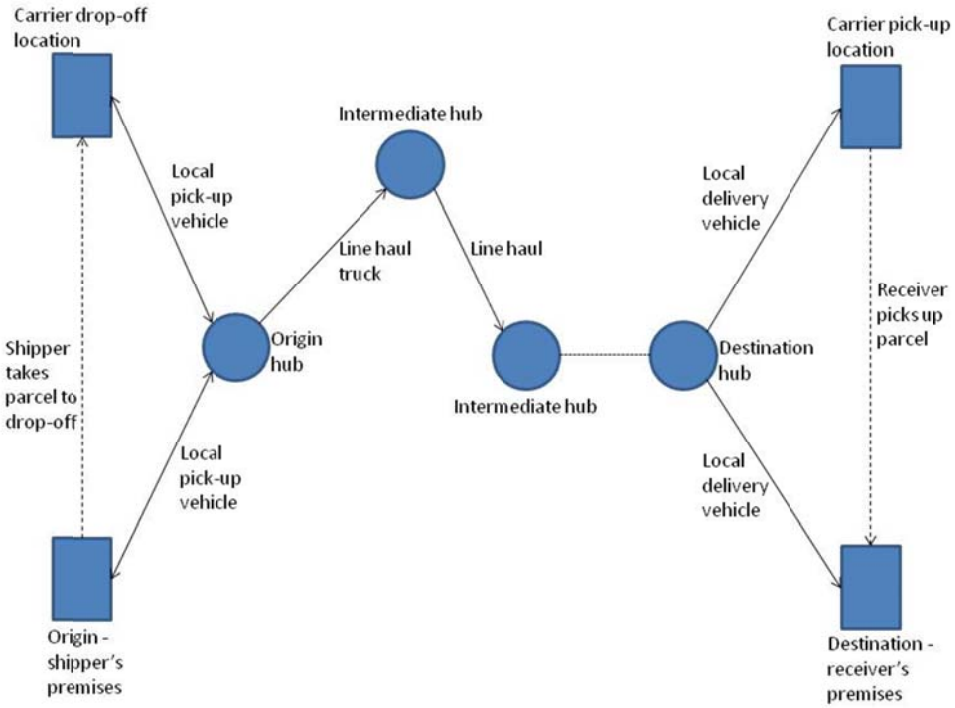

Figure 2: Typical steps in parcel movement from origin to destination (Li 2002, 28)

The above Figure 2 represents movements by road transport only. When it comes to an air transport, the steps are not significantly different. An air express shipment has all the same stops as its road counterpart. The only difference is the transport mode between the origin, intermediate and destination hub. Instead of line hauls, the transitions between the hubs will be done by an airplane. (Appel 2013.)

3.4 Types of parcel delivery services

According to Croucher et al. (2006, 73), parcel delivery services are generally compared based on four main attributes: asset dedication, speed of delivery, size of consignment and contractual basis (Table 4).

Broad Service Type	Asset Dedication	Speed of delivery	Size of Consignment	Contractual Basis
Express	shared	next day	small	transaction
Groupage	shared	slower than express	larger than express	transaction
General Haulage	shared	slower than express	as required	transaction or contract
Shared or Multi-user Distribution	shared	slower than dedicated	as required	contract
Dedicated Contract Distributions	dedicated	as required	as required	contract

Table 4: Breakdown by broad service types by attribute (Croucher et al. 2006, 73)

Li (2002, 31) adds that the service offerings of parcel carriers usually include different alternatives in terms of delivery times. These variations are commonly expressed through the service names, e.g. DHL EXPRESS 9:00, DHL EXPRESS 12:00, DHL SAME DAY, etc. There are also services without exact delivery guarantees but which have an estimated time for delivery that is made known to the shipper, e.g. DHL GLOBAL MAIL service normally delivers shipments within 2-5 business days in Europe. (Li 2002, 31.)

3.5 Parcel delivery service concept for consumers

The target service for this study is the last mile of a parcel delivery service concept for consumers. Consumers as consignees have different needs, requirements and expectations than business customers and, therefore, should also be treated differently. DHL Express has an existing parcel delivery service, but because it has originally been designed for business customers, some features of the existing service need to be developed further in order to meet the requirements of consumers. Based on previous studies, many resources have recently been focused towards better understanding of "the last mile of supply chain" – a portion of the supply chain that delivers parcels directly to the consumer homes. This part appears to cause most problems for parcel carriers. (Kull et al. 2007, 409.)

According to Lim and Shiode (2011, 732-733), responding to the increasing demand of small-sized frequent shipments related to online shopping, causes a significant challenge to the logistics service providers (LSPs). The packages will need to be delivered across large geographical areas and not only to the main cities or business centres. This requires thoughtful designing and management of the physical distribution network. Thus maintaining cost efficiency and a high quality of the service is essential for LSP's in order to succeed in the online shopping business. Lim and Shiode (2011, 733) argued that the challenge lies in how the LSPs should react to meet the requirements of increased parcel demand. Based on Lim and Shiode's (2011, 733) research, the first phase would include utilisation of the company's existing resources, and only after that starting to consider making more significant capital investments by for example re-structuring their logistics network. (Lim & Shiode 2011, 732-733.)

The delivery of goods to consumer's homes varies significantly from the traditional business-to-business delivery (Nicholls & Watson 2005, 432). These differences include, for example, replacing some of the traditional bulk product flows to shops by smaller multiple drops deliveries to consumer's homes. Additionally, e-commerce has influenced features from the packing through the size of delivery vehicles to the number of delivery attempts. All in all, the shipments have become more time sensitive because delivery attempts may fail if the consumer is not at home. Xing et al. (2011, 337) have created a table which presents these differences in a comparable manner (Table 5). (Nicholls & Watson 2005, 436-437.)

Attributes	Traditional Delivery	E-commerce Delivery
Distribution chain	Producer-wholesaler-retailer	Online-retailer-customer
Shipment size	Large	Small
Shipment type	Homogenous	Heterogeneous
Number of loads (density)	High	Low
Number of delivery stops	One or more stops	Many stops
Delivery failure	Few	Many
Delivery frequency	Low	High
Delivery time sensitivity	Low	High
Number of vehicles required	Low	High
Vehicle size	Large	Small
Delivery cost per each load	Small	High

Table 5: Characteristics of e-commerce delivery (Xing et al. 2011, 337)

As the Table 5 illustrates, the differences between traditional delivery and e-commerce delivery affect several attributes of the service. As a consequence, the cost effects for the logistics service providers become highly visible. For example, each delivery stop the courier makes, adds the operational costs for the logistics service provider by a certain amount. When the number of the delivery stops increases together with the amount of delivery failures, it has a significant impact on the additional costs. Other aspects which can be seen from the comparison are the network related differences between the delivery types. Based on this information it might even be impossible to provide a high quality e-commerce delivery in the traditional delivery network. (Nicholls & Watson 2005, 436-437.)

The impact that consumers have on logistics and on the very nature of the final delivery operations, affects the entire supply chain. Croucher et al. (2006, 77-78) have listed, for example, the following implications:

- Significant increase of direct home deliveries results into restricted delivery windows and have an impact on delivery vehicle utilisation.
- New distribution systems need to be created because of the changes in parcel types and therefore in vehicle types (small deliveries on small vehicles into residential areas).

- Taking advantage of existing delivery services by giving them a new life. (Croucher et al. 2006, 77-78.)

The new requirements of delivery service concepts are being researched constantly and more insight is being collected in relation to consumers as consignees. One of these studies (Goebel et al. 2012, 584) has revealed that consumers consider convenience as an important factor when shopping and consuming. The amount of effort and time that can be saved is one of the main drivers behind consumer behaviour. As a result, it has been suggested that logistics service providers should make their services more predictable. This would reduce the need of self pick-up and consequently increase the level of convenience. (Goebel et al. 2012, 584.)

Weltevreden (2008, 640) in turn has researched collection-and-delivery points as a possible solution for the increasing amount of failed delivery attempts. Logistics service providers who deliver a shipment to a collection-and-delivery point after a delivery failure may save both time and fuel, as they do not need to visit a home for a second or a third time in order to get the shipment delivered. When located conveniently (for example at areas that already create consumer trips) the additional effort to collect the shipment is relatively small for the consumer, thus the amount of product losses or insurance claims will be reduced as there will not be need for unsecured deliveries. (Weltevreden 2008, 639.)

According to Li et al. (2006, 183), e-commerce has revolutionised both the way how goods are sold and how they are delivered. Li et al. (2006, 183) continue by stating that consumers "want customised products delivered at a high speed with complete order flexibility and convenience". In other words, consumers expect to be able to re-route parcels, determine delivery costs, and even break-up their orders to multiple addresses. Experiences such as long shipping time, partial orders or poor product return policies are not tolerated. (Li et al. 2006, 183.)

In addition to the changes that e-commerce has brought to the logistics service providers' standard operations it has also influenced the relationship between consumers and retailers. One of these changes is related to the significant role of logistics service providers in forming consumer's perceptions of service quality. Despite the fact that logistics service providers operate under "the line of visibility", as showed in Figure 3, a poor service provision by the logistics service providers could have a negative impact on the retailer's reputation and brand. Therefore, choosing the right service provider is vital for the retailer. (Xing et al. 2011, 340.)

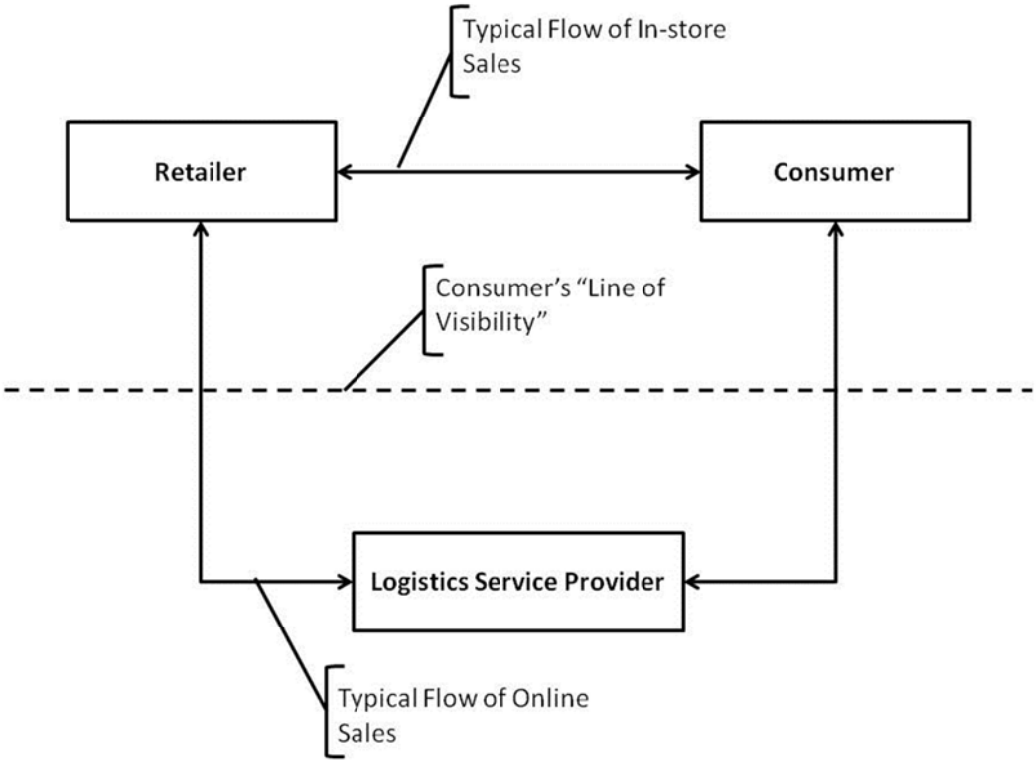

Figure 3: Product flows for in-store and online sales (Xing et al. 2011, 340)

According to Xing et al. (2011, 351), there are several aspects that could be improved in order to increase the success rate in the first delivery attempts. Some of the ideas are related to the logistics service providers and others are on the hands of retailers;

- Logistics service providers should use email, phone calls or texts to advise the delivery date and time to consumers, including sending a few reminders. Additionally, they should ask consumers about alternative options if nobody is at home before the delivery, and give them more choices about how and when they receive orders.
- Retailers should package small items such as books, beauty products or gifts in such a way that they can be delivered through the letterbox. In addition, they should involve logistics service providers to communicate with consumers as much as possible or develop a link to logistics service providers' web pages.
  (Xing et al. 2011, 351.)

4 Service concept, service process and business process redesign

In this Chapter the theories related to service concepts, service process, and business process redesign will be discussed. These themes provide useful information and suggestions of methods that could be used when developing existing services.

4.1 Service concepts

For more than 50 years ago, Professor Neil Borden created the concept of the marketing mix. However, his creation was made with manufactured goods in mind. Since then many textbooks have refined Borden's original concept into four board categories: product, price, place and promotion, commonly known as the "4Ps". (Lovelock 1996, 311.)

The framework of 4Ps can be used for examining service marketing activities, but it also had a few limitations. Therefore, the framework has been developed further and four additional elements have been added: people, physical evidence, process and productivity and quality. According to Goldstein et al. (2002, 123), the concept of 8Ps was first defined by Lovelock and Wright in 1999 as the nature of a service in terms of its constituent parts. (Goldstein et al. 2002, 123.)

In the marketing context, the 8Ps have been used as a basis for the service concept. Goldstein et al. (2002, 123) introduced this approach as the aspects that provide benefit and value to the customer. Therefore, it may be used as a systematic way to determine the above mentioned components of a service concept. However, it does not provide any guidance on the format or level of details and usage. (Goldstein et al. 2002, 123.)

Lovelock's and Wright's (2001, 13) 8Ps of integrated service management describes eight decision variables which face the managers of service organisations. Since the four elements that have been adapted from the traditional 4Ps are commonly known, only the added four elements will be explained here.

Process

"The process describes the method and sequence in which service operating systems work". Processes are essential for businesses; poorly functioning processes will irritate both customers and employees. Ineffectiveness caused by ill designed processes will result in low productivity and in some cases even in service failure. (Lovelock & Wright 2001, 14.)

Physical evidence

The physical evidence part of 8Ps refers to "the tangible elements that will be encountered by customers in the service delivery environment and to the tangible metaphors which have been used in symbols, slogans, or advertising messages" (Lovelock & Wright 2001, 247). There are three common ways by which the marketers use physical evidence: as an attention-creating medium, as a message-creating medium and as an effect-creating medium. (Lovelock & Wright 2001, 247-248.)

People

The people element refers to customers and employees who are involved in the service production. The relationship and interactions between customers and personnel form the basis of the customer's perception of the service quality. Because people play such a vital role in the perceived service quality, successful service companies are investing a lot of money in recruiting, training, and motivating their personnel, especially employees who are in direct contact with customers. (Lovelock & Wright 2001, 14.)

Productivity and quality

Productivity and quality have traditionally been seen as issues for operations managers, but have since been linked to the customers and more precisely to the recognition that quality should be customer defined. Improving quality from the customer's perspective leads to higher corporate profits and improving productivity helps to keep the costs down. Lovelock and Wright (2001, 279) defined productivity as a measure of how efficiently a company can transform inputs, including labour, materials, energy and capital to outputs which are the final outcomes of the service delivery process as perceived by the customer. (Lovelock & Wright 2001, 264-265.)

Edvardsson and Olsson (1996, 145) defined service concept as the customer's overall experience of the service, including the perception of quality and therefore determining whether the customer is satisfied or not. It clarifies in detail the customer need that is being satisfied and also how it is to be achieved. Edvardsson's and Olsson's (1996, 149-150) model of the service concept covers the field of needs and the service offer to meet this field. Their field of needs includes both primary and secondary customer needs and the service offer describes both the core service and supporting services.

According to Hakanen and Jaakkola (2012, 596), a service concept is "a framework used in the service development and design literature to denote the "what" and "how" elements of that constitute a service". They also argue that the following dimensions have been used most commonly, when discussing about a service concept:

- the core content of the solution, the essence of the service that meets the customer need
- the operations and processes needed to create the solution;
- the customer experience of the process; and
- the outcome of the service, and its value to the customer.
  (Hakanen & Jaakkola 2012, 596.)

When a service concept is being developed for a specific customer segment, a research will be needed to identify which features of the particular service are important to the specific market segment and how well the prospective customers perceive competing organisations as performing against these features. However, the researchers should avoid over generalising things. Additionally, it is crucial to determine who is making the decisions. The researcher must first identify which features are important to the customer in choosing the intermediary, and then which features are important to the intermediary in selecting the service provider. (Lovelock 1996, 166.)

4.1.1 Service offering: core and secondary services

Gilmore (2003, 18) argues that services can be divided into core and secondary services which form the overall service package. By core service, Gilmore (2003, 18) refers to the service company's main offering. There usually are several companies, who operate in the same field and it is the secondary services that distinguish them from each other. The secondary services are designed to meet the needs of customers. The better the customer needs have been fulfilled, the more likely it is that they will become integral to the customer's perception of the core service. (Gilmore 2003, 18.)

Gilmore's (2003, 16) concept is based on the traditional marketing discussion, where "the concept of augmented product is often used to illustrate the idea of a product package or bundle of benefits included when a customer buys a physical good". The adaptation of this concept for services considers the entire service product, process and experience. Due to the intangible nature of services, people play an important part in both producing and consuming the service offering. (Gilmore 2003, 17.)

According to Lovelock (1996, 57), the service product is essentially "a bundle of activities, consisting of the core product plus a cluster of supplementary services". Lovelock (1996, 58)

additionally points out, that all service companies must adjust their thinking in terms of performing well on each of the actions and reactions that their customers perceive themselves to be purchasing. There are a few alternative ways to identify the supplementary services, including flowcharting the service delivery process and customer research. (Lovelock 1996, 59.)

It is typical for service industries that the core product will eventually become a commodity as competition increases and the industry matures. As a consequence, the competitive advantage starts to emphasise the performance on the supplementary service elements. All in all, if the company cannot do a decent job on the core elements, it will sooner or later go out of business. Therefore, performing well on the core service is a matter of do or die. (Lovelock 1996, 59.)

4.1.2 The molecular model

Shostack (1977, 76) created a molecular model in 1977 to provide a more specific understanding of the structure of service products. The molecular model uses a chemical analogy to help marketers visualise and manage a total market entity. This model is adaptable for both goods and services. At the centre of the model, there is core benefit, describing the basic customer need, linked to a series of additional service characteristics. Around the molecules are a series of bands representing price, distribution, and market positioning. According to Shostack (1977, 77-78), the more intangible the service, the more necessary it is to provide tangible clues as to the features and quality of the service. (Shostack 1977, 73-80.)

4.1.3 Service Concept Worksheet Template

Bettencourt (2010, 190) describes service concept as a critical component of a service strategy. He expects the service concept to specify "what the service provides to customers to satisfy their needs and how the service delivery system is designated to provide customer and company value". Bettencourt (2010, 191) has created a model to be used for documenting a service concept. This model, Service Concept Worksheet Template, is presented in Figure 4.

<table>
<tr><td colspan="2">Concept Name:
A descriptive and memorable name</td></tr>
<tr><td colspan="2">Concept Description:
A high-level description of what the service is in terms of what it does for the customer and what makes it unique and valuable; possibly a description of the target customer</td></tr>
<tr><td>Concept Features:
Key features or offerings that deliver value to the customer</td><td>Feature Justifications:
Justification based on specific outcomes, related jobs, or emotional jobs of customers</td></tr>
<tr><td>Key design dimensions that make the service unique and valuable</td><td>Justification based on specific outcomes, related jobs, or emotional jobs of customers</td></tr>
<tr><td>Key service system characteristics, such as the role of people, technology and procedures</td><td>Justification based on specific outcomes, related jobs, or emotional jobs of customers</td></tr>
<tr><td colspan="2">Concept Visual:
A concept rendering or preliminary service blueprint, including identification of key supporting processes and systems</td></tr>
</table>

Figure 4: Service Concept Worksheet Template (Bettencourt 2010, 191)

Bettencourt's (2010, 191) service concept model has its roots in developing a service strategy. That is why the template highlights differentiation of the service features and supports in identifying service features that help customers in completing the task they are trying to get done and additionally achieve the results they are aiming to when hiring a service for the job. (Bettencourt 2010, 190.)

4.2 Service process

According to Edvardsson and Olsson (1996, 155), a service process is a chain of activities that must be performed simultaneously in order for the service to be produced. These activities occur both in the service provider's premises as well as in their partners' and customers' premises. Therefore, the company "does not have direct control over each part of the process but must nevertheless be able to control the process in its entirety". (Edvardsson & Olsson 1996, 155.)

Service providers are familiar with the fact that customers value well functioning delivery processes. These processes include the design and control of the customer's experience

during the service encounter. A customer outcome is the result of process; in other words, customer is either satisfied or dissatisfied with the service delivery experience. (Mayer et al. 2003, 621.)

There has been a product-process matrix for describing goods-producing decisions concerning strategy, process choice and product mix since Hayes and Wheelwright (1979a; 1979b) proposed it in the 1979. However, according to Collier and Meyer (1998, 1223), this matrix does not adjust well to service businesses and processes due to differences in the relationship between volume and process. Regardless of many previous attempts by several authors to create a matrix for service businesses, Collier and Meyer (1998, 1223) argued that none of these matrices is satisfactory. A comparison of positioning matrices for services criteria is presented in Table 6.

Matrix developed by	Customer / employee involvement dimensions	Service system design dimensions
Schmenner (1986; 1990)	Degree of customer contact and customisation	Labour intensity of the process
Silvestro et al. (1992)	Number of customers processed by a typical service unit per day	Equipment / people, contact time, customisation, employee discretion, value added, product / process focus
Tinnilä and Vepsäläinen (1995)	Type of services (mass transactions, standard contracts, customised delivery, and contingent relationships)	Type of channel of access to the service (market network, service personnel, agent alliance, internal hierarchy)
Kellogg and Nie (1995)	Service process structure (degree of customer influence)	Service package structure (degree of customisation or customer discretion)

Table 6: A comparison of positioning matrices for services criteria (Collier & Meyer 1998, 1229)

As a result of their research, Collier and Meyer (1998, 1231) developed a new service delivery system matrix. The horizontal axis of the new matrix includes the following aspects:

- The degree of customer discretion, freedom and decision making power in selecting their service encounter activity sequence(s).

- The degree of repeatability of the service encounter activity sequence(s). (Collier & Meyer 1998, 1232.)

And the vertical axis is defined as follows:

- The number of unique pathways (routes) that customers can take as they move through the service system during delivery of the service.
- Management's degree of control designed into the service delivery system. (Collier & Meyer 1998, 1232.)

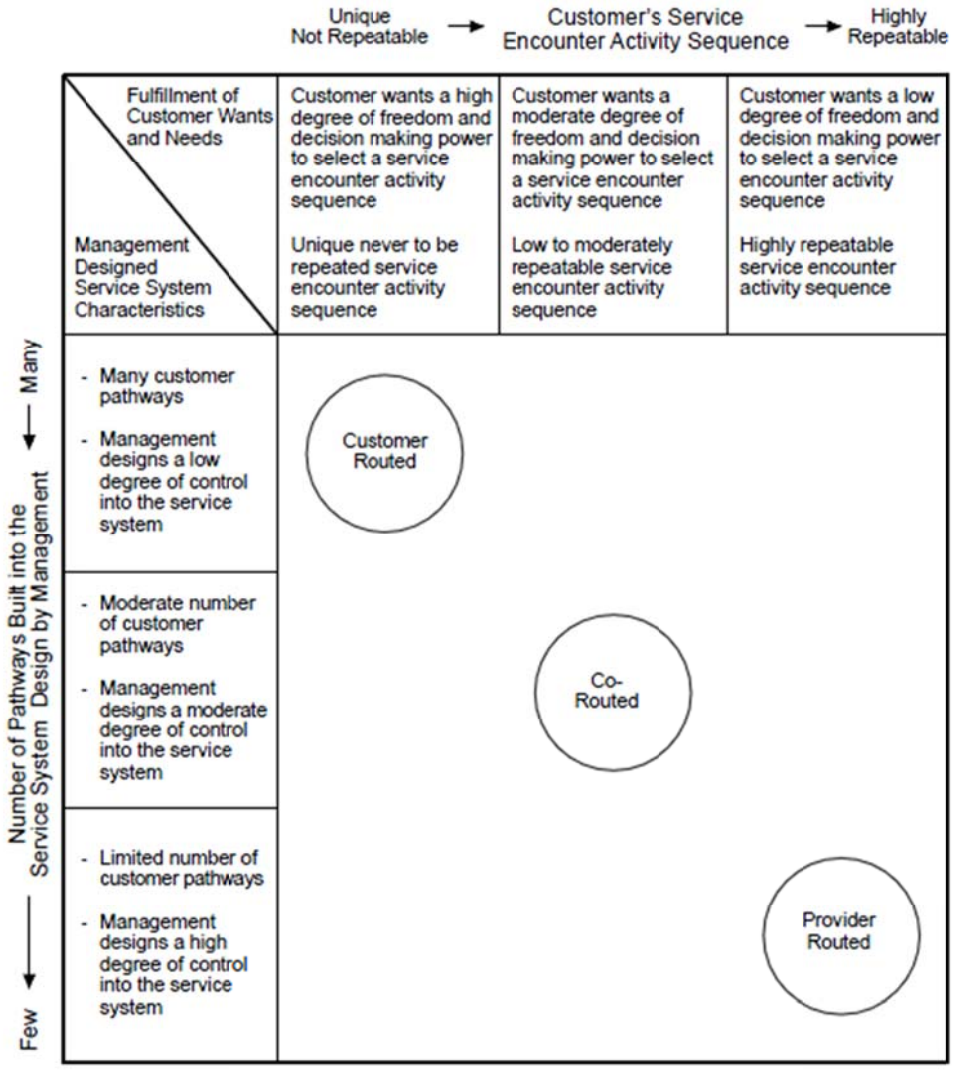

Figure 5: The service delivery system matrix (Collier & Meyer 1998, 1231)

Collier and Meyer's (1998, 1231) service delivery system matrix has two purposes in the marketplace. It can be used when designing a new service or developing an existing service and once the service system framework has been installed, the management can use it to access information regarding customer discretion and freedom during the consumption of the

service. The new service delivery system matrix aims in providing a new way to think about service businesses. (Collier & Meyer 1998, 1233.)

Collier's and Meyer's (1998, 1223) service delivery system matrix assists service organisations in determining the appropriate service system design based on the nature of the service the customer wants. The main theory behind the service delivery system matrix is that

- the direction of causation is from the targeted disposition of the customer's chain of service encounters to the recommended service system design;
- superior performance results from staying roughly on the diagonal of the matrix; and
- the two axes are conceptually independent.
  (Collier & Meyer 1998, 1231.)

Collier and Meyer (1998, 1242) concluded that the service delivery system matrix "matches the customer's desired service encounter activity sequence to the design and structure of the service system and its number of pathways".

4.3 Business process redesign

Business process redesign has been a trend among many world-class companies since mid 1990s and the results indicate that remarkable cost and time savings have been achieved by restructuring business processes and organisations. Companies have used the process redesign especially in improving the operational efficiency. However, more recent studies of business process redesign projects have reported quite significant failure rates. While mismanagement of projects has commonly been connected to the failures, the real reasons are more complex. Tinnilä's (1995, 44) research introduced a shift in the mindset as an interest towards strategic and organisational aspects of business process redesign has started to take place. The study indicates that in addition to operational aspects, organisational and strategic perspectives should be taken into consideration when redesigning processes. (Tinnilä 1995, 44.)

In the past, business process redesign was more of a "lean management" which resulted in significant process changes from an operational point of view. Tinnilä (1995, 57) suggests that the next phase should include process development to support both organisational restructuring and fulfilment of strategies. The aim of process development is to define the targeted strategic objectives and redesign organisation and operations according to them. (Tinnilä 1995, 57.)

5 Integrating users into the service development process

In this Chapter the terms of user involvement, user research, user experience, co-creation and value co-creation are being described. The existing literature highlights the importance of involving users in the service development processes and presents theories about how to manage services in the future. These themes are important for service design projects and, therefore, included in the theoretical part of this thesis.

5.1 User involvement

A number of structural changes in the service sector have occurred in the past and have formed the basis of the ongoing need to develop new services that are accurate and meet the user needs. In addition, user input and involvement are important fields of inquiry. However, due to the intangible nature of services, it should be noted that the development process of new services is different from the one of new products. Thus, many service sectors are facing a rapidly changing market. Therefore, it seems that there is pressure on many service companies to interact with end-users and involve them in the new service development process. (Alam 2002, 250.)

User involvement in service development is a rather new area of research. In the mid 1990s, a few researches (de Brentani 1995; Edgett 1994) stated that in-depth understanding of user needs is the key to success in service development. Achieving this kind of detailed information, companies must involve users in the development process. (Alam 2002, 251.)

A previous research (Alam 2002, 257) about user involvement in service development processes has shown that not only can it create services that meet customers' needs better but user involvement may also decrease the overall time of service development process. Additionally, user involvement may even affect the acceptance of the developed service in the market. (Alam 2002, 257.)

5.2 User research

The concept of user research describes the process of finding out, how people interpret and use services. Diverse methods such as interviews, surveys and evaluations that are being conducted before and during design can separate usable and successful services from the ones that are unprofitable and cause irritation to everyone involved. Once the service has been launched, user research is a valuable method for determining, how to improve it or to build something new. (Goodman et al. 2012, 3.)

A service's end-user experience is the cornerstone to its success (Goodman et al. 2012, 22). There are two separate ways, how to interact with customers (Edvardsson et al. 2010, 571); in user-centric approach, the end-user is seen mainly as an information source. The other solution is user-driven approach, in which a close co-operation will result in new business opportunities.

5.3 User experience

During the recent years, it has become more difficult to maintain competitive advantage purely based on specific features of a service. Therefore, an increasing number of companies are beginning to realise the power of the concept of experience and the various possibilities it will provide in re-designing services and producer-consumer relations. According to Kull et al. (2007, 410), "the use of this concept is helpful also when analysing how to improve the efficiency and effectiveness of last mile supply chain". (Fitzsimmons & Fitzsimmons 2000, 50.)

In order to understand the concept of user experience, the term experience needs to be defined. According to Fitzsimmons and Fitzsimmons (2000, 35), experience may be characterised and differentiated from products and services based on three dimensions; the organisation's influence over the customer's use environment, customer participation and social interaction. Additionally, in a service context, the experience is usually created jointly by customers and service providers. Therefore, Fitzsimmons and Fitzsimmons (2000, 40) concluded that experience is a socially produced and context specific phenomenon. (Fitzsimmons & Fitzsimmons 2000, 35.)

Another widely used definition was created by Pine and Gilmore (1998, 98). It provided more limited description by stating that experiences are being created when "a company intentionally uses services as the stage and goods as props, to engage individual customers in a way that creates memorable events". Lovelock (1996, 49) focused on service encounters, term which has originally been defined by Shostack (1977, 243-254) as "a period of time during which a consumer interacts directly with the service", when researching the user experience. Lovelock (1996, 49) argued that the concept of the service encounter is central to understanding and developing the user experience.

According to Väätäjä et al. (2012, 2), the formal definition of user experience, or usability, describes the term as "a person's perceptions and responses that result from the use or anticipated use of a product, system or service". Kuniavsky (2003, 43) extended the definition of user experience to everything that relates to a person's interaction with a service and as a

continuous process that includes the aspects that attract the users to the service as well as the actual consumption of the service. Bettencourt (2010, 25) in turn pointed out that the key to successful services is to understand how consumers define value. Additionally, consumer's experience while consuming the service has a major impact on his or her opinion of the service. Therefore, it is important to first uncover the consumer needs and then prioritize them. (Bettencourt 2010, 25.)

5.4 Co-creation

According to Bettencourt (2010, 25), understanding consumers and their perceived value is the secret to successful service development projects. Involving the users in the development process is the minimum requirement. However, there is an alternative that demands even deeper user involvement; co-creation.

Integrating customers in the innovation and development processes is a key success factor for companies because it enables the company to understand customers' actual behaviour, needs and future trends better (Edvardsson et al. 2010, 575). The integration is called co-creation provides deep insight into consumers' emotional needs and information about the practical requirements of performance. Any company, that is willing to co-create, needs to enter into partnership with its customers and end-users and allow them real influence. (Ind et al. 2012, 8.)

According to Prahalad and Ramaswamy (2004, 6), it is also important to understand, what co-creation is not. Nor is it the transfer or outsourcing of activities to customers but it is not either a marginal customisation of products and services. Neither is it a scripting nor staging of customer events around the company's various offerings. This type of company-customer interaction does not satisfy most of today's consumers. (Prahalad & Ramaswamy 2004, 6.)

Co-creation is a fairly new concept in the service world. It is a process, where the value of services is being co-created together with the company and the customer. When user's needs and expectations are the starting point of the development process, the usability and therefore success of the product or service will be secured. (Miettinen & Koivisto 2009, 64.)

A co-creation session aims to investigate possible directions and collects wide range of perspectives in the process. Afterwards the results will be used as inspiration for the main design team. They will then develop and reframe it further during the following steps in the design process. And finally, co-creation also facilitates future collaboration by bringing groups together and creating a feeling of shared ownership. (Stickdorn & Schneider 2010, 199.)

According to Ojasalo (2010, 174), companies who are developing services would benefit of active involvement of customers already in the early stages of service design process. A well functioning service design requires building a deep, long-term development partnership with the customers. When collaborating with customers, service innovations are being elaborated and the company's service portfolio designed in a customer focused and profitable way. (Ojasalo 2010, 174.)

5.5 Value co-creation

Ojasalo (2010, 171) describes value co-creation as a process where customers have been engaged in both defining and creating value. Ojasalo (2010, 171) also adds, that in value co-creation, "business strategy starts by understanding the customer's value creating processes and selecting which of these processes the supplier wishes to support". However, it is the customer who defines the value and the value is being created in the in the consumption stage. Finally Ojasalo (2010, 174) concludes that "value co-creation may result in unique value often started with spontaneous idea achieved through dialogical interaction". (Ojasalo 2010, 174.)

According to Grönroos (2010, 288), customers as the users are managing their value creation, and the service provider may be invited to join in as a co-creator. However, it is only under certain conditions, that a service provider gets an opportunity to co-create value together with its customers. In other words, company's value co-creation can be described as joint value creation with the customers. Thus co-creation of value will only occur if there are interactions between the company and the customer. If there are no direct interactions, value co-creation will be impossible. The quality of the interactions between the parties is essential for value co-creation. (Grönroos 2010, 288.)

Prahalad and Ramaswamy (2004, 5) included consumers to the co-creation process. Their vision of the future is based on an individual-centred co-creation of value between the consumers and companies. Additionally, Prahalad and Ramaswamy (2004, 5) argued that consumers prefer interacting and value co-creating with entire groups of professionals, service businesses and other consumers, not just with one company. The actual co-creation experience is entirely formed by the participating individuals. Thus a company is unable to create anything of value without the engagement of individuals. (Prahalad & Ramaswamy 2004, 5.)

6 Collection and analysis of empirical data

Stickdorn and Schneider (2010, 122-127) describe service design as an iterative process that includes exploration, creation, reflection and implementation. Even though the design process is often seen as linear, it might be necessary to take a step back or even start from the scratch. Additionally, there will always be dilemmas and paradoxes on the way, and in these cases the decisions are being made based on the budget, resources and the opinions of the client. (Stickdorn & Schneider 2010, 122-127.)

The author decided to use the above process steps as a framework in the empirical part of this study. During the exploration, creation and reflection phases, a number of service design methods will be used. The author has chosen the methods based on their usability and effectiveness during this particular study. The intention is to ensure that the quality of the data is good and that there will be enough data. The selected methods are designed to function well together and they will also facilitate iteration during the process.

6.1 Exploration

In order to gain further insight about the topic, a research that covers both the company's and the consumers' viewpoints needs to be conducted. At first a comprehensive understanding from both parties is required. This will be accomplished by involving both parties in the process and keeping them alongside as co-creators. Additionally, the author will use supplementary methods, such as observation, to achieve a strong idea of the research topic through various perspectives.

This study will be conducted by using qualitative research methods. The qualitative methods commonly include collecting data in the field at the site where participants experience the issue that is being studied. The insights are being collected by having direct discussions with people and observing them while they behave and act within the context. It is typical for the researchers to have face-to-face interaction with the participants over certain period of time. Another common feature in qualitative research is that the researchers tend to gather multiple forms of data, such as interviews, observations, documents and audiovisual information rather than rely on a single data source. (Creswell 2013, 185.)

6.1.1 Service blueprint

A service blueprint is used when describing an entire service concept in highly detailed manner and covering each individual phase of the service. Usually, all involved stakeholders are being included in the blueprint. The outcome is a visual roadmap, which provides clear view of everything from the service encounters to behind-the-scenes processes. (Stickdorn & Schneider 2010, 204.)

Creating a blueprint requires "indentifying all of the key activities involved in service delivery and production, clarifying the sequence, and specifying the linkages between these activities" (Lovelock & Wright 2001, 153). In other words, service blueprint clarifies the interaction between customers and employees and how these are supported by additional activities and systems backstage. Therefore, it is a useful tool for managers who want to identify potential fail points where the risk of potential problem points is more significant. (Lovelock & Wright 2001, 153.)

In terms of existing service concepts, blueprints can be used as a tool for product improvements. It helps the managers to spot opportunities to reconfigure delivery systems, to add or remove certain features, or even re-position the service to appeal to other segments. Service blueprints additionally help the managers to gain insights into what is happening to the customer at each stage. During the creation of a service blueprint, the key components are:

1. Definition of standards for each front-stage activity.
2. Physical and other evidence for front-stage activities.
3. Principal customer actions.
4. Line of interaction.
5. Front-stage actions by customer-contact personnel.
6. Line of visibility.
7. Backstage actions by customer-contact personnel.
8. Support processes involving other service personnel.
9. Support processes involving information technology.
   (Lovelock & Wright 2001, 154.)

All the background information for the blueprint representing DHL Express' current parcel delivery process (Figure 11) was collected from interviews with both Operations Director and Customer Service Director and from the author's professional experience from the past eight years in the logistics sector.

At first a high level sketch was made based on the author's existing knowledge. Then the sketch was presented to both of the Directors who confirmed the visualized process steps and provided additional information regarding certain parts of the processes. Finally, the author added some visual effects in order to separate the internal processes from external ones and also to distinguish both the last mile context and alternative options regarding actions after the first unsuccessful delivery attempt.

6.1.2 Observation

"Observation is the ultimate subjective experience: It is shaped by the observer's own cognitive limitations, unacknowledged prejudices, and preconceived categorization of reality (Mariampolski 2006, 122)." There are different types of observation where the amount of contact between the researcher and the subject varies. For example, pure observation involves very little or no interaction. (Mariampolski 2006, 111.)

During September 30th and October 1st 2013, the author visited DHL Express' Service Point in Vantaa and observed the interaction between the consumers and DHL employees. There were several things that caught the author's attention:

- At times, there are no personnel at the reception when the customers ring the door bell and try to gain access to the terminal area, where the Service Point is located.
- The same may occur, when there are already customers inside the Service Point and they can hear how other customers ring the bell time after time.
- The reception is located in the terminal area and some customers have problems in finding the right door.
- Sometimes the customers need to wait a long time to be served.

On Thursday October 3rd 2013, the author joined one of DHL Express' couriers in a delivery route that includes only business-to-consumer parcels. On that particular day, the courier had 16 parcels to be delivered to addresses in Vantaa and Espoo. Each consumer, whose phone number was stated on the air waybill, was called prior to the delivery attempt. Five of these consumers did not answer the call and only one of them called back later during the evening. However, four of the consumers were at home during the delivery attempt and received their parcels. Seven consumers answered the call. Four of them were at home and confirmed the suggested delivery time. Three consumers were not at home at the time and a later delivery time for the same evening was agreed. In four cases, the phone number was not available, but the consumers happened to be at home and the delivery was successful. All in all, only one parcel had to be returned to DHL Express' terminal.

Amongst these 16 consumers, three were surprised to receive the parcel. One of them had not realised that a home delivery was included in the transportation and two were expecting the parcel to arrive only during the following week. Rest of the consumers who were reached were clearly expecting the delivery and also familiar with DHL Express' service. Two consumers who did not answer the call commented that they had not been informed about the upcoming delivery in advance. However, once the courier told that she had tried to call them, they noticed the missed call and were satisfied with the situation. Three consumers were seemingly happy and spontaneously complimented the service experience.

During the delivery tour, the author noticed some issues that will require further investigation:

- Because only one consumer called back to the courier, the author began to wonder if the consumer will be able to find the courier's phone number from a finder service.
- The courier did not have a proper navigator and did, therefore, a few unnecessary turns when trying to locate the correct address. When time is money and the company's core business is logistics, a navigator should definitely be found from each of the delivery vehicles.
- Couriers call the consumers as they proceed on the route. There might be several parcels to one street, but not all of the consumers are at home at the same time. Therefore, the courier will need to return to the same address later during the same evening. If the consumers would be called earlier on the day, perhaps a later delivery time could be agreed with all of them and the additional returns to the same area could be avoided?
- The courier should try to avoid promising too tight time frames for a delivery because of any unforeseen events that might occur during the route. For example, a time window of 30-40 minutes could be enough to meet the requirements of both the consumer and the company.

In addition to the above mentioned issues, the author also found out that there is a time related difference involved when consumers make their choice regarding the delivery alternatives after the failed first delivery attempt; the only way to receive the parcel still the same day, is by selecting the self pick-up. For the other options, the next possible delivery attempt occurs during the following business day. Therefore, it is justifiable to assume that at least a part of the consumers make their decision based on this element. The author will try to investigate this possibility more by asking the consumers which characteristics of a parcel delivery service concept are most important for them.

To obtain more information about the consumers' current behaviour and preferences, the author requested data from the customer service. All customer inquiries regarding changes to

delivery addresses are being recorded to the internal tracking and tracing system. From these records, a database of all inquiries from certain, randomly selected Monday was created. Based on this data, the author found out the following interesting details: On an average Monday, which is the busiest day of the week, approximately 190 consumers contact DHL Express' customer service in order to request a change to the delivery details. Most of the contacts (approximately 85 %) come by phone. Rest of the consumers' inquiries are being received by e-mail or through DHL Express' web pages. Among these 190 consumers,

- 15 % choose the self pick-up option,
- 60 % request second delivery to the same address, and
- 25 % request delivery to a new address.

(Moberg 2013.)

In addition to the above data, the author went through dozens of consumer inquiries that were received by email and contact forms in DHL Express' web pages. These messages were all from consumers whose parcel's delivery had failed due to them not being at home. Most of the messages contained only confirmation of the preferred solution but some consumers had also taken advantage of the situation and given feedback of the service. The main observation was, however, not related to the actual feedbacks, but to the problems caused by incomplete information on the messages. The author was told that certain details are missing from these inquiries due to problems with DHL Express' own web tools and templates.

6.1.3 Contextual interview

Contextual interviews take place in the surroundings or context that the service process occurs. It is an ethnographic research method that allows the researcher to observe the situations and also probe the behavior of the object that's in scope. One of the main benefits of this method is that it will support the researcher in remembering specific details. The researcher will additionally get a better picture of the social and physical surroundings. The participants are often chosen via recruiting process. The interviewer will visit the interviewee within the environment in which they produce the service that's in scope. This method is a combination of asking questions and observing the situation at the same time. Useful tools in this case are audio recorders, cameras and notes as well. (Stickdorn & Schneider 2010, 162-163.)

In addition to the observation at DHL Express' Service Point between September 30th and October 1st 2013, the author conducted open interviews with consumers who came to pick their parcels up. These interviews were held in order to ensure that the main data collection method, a sentence completion form, covered all the needed areas. During the interviews, the consumers were given a chance to share some of their previous experiences regarding the

last mile context. The author had reserved a separate meeting room for the interviews, in order to ensure privacy and peaceful location. Few consumers did not want to participate in the whole 10 minute interview, and gave their feedback right at the scene. Rest of the consumers agreed to sit down for a full interview. The interviews were recorded and later a transcript was made of them.

The transcript reveals that there was one comment that came through in all of the interviews and sometimes even several times during a session; the courier is expected to contact the consumer before the first delivery attempt and this does not happen in all of the cases. Additionally, the contact should occur well before the actual delivery in order for the consumer to have enough time to react on it. An interesting detail was that a majority of the interviewees used a term "appointment" when discussing about the delivery attempt. Another common factor was the consumers' flexibility in terms of the delivery time. The consumers are both willing to make some arrangements to their schedules and available at different times of a day. Finally, even though most of the consumers were not irritated to use the self pick-up option, they all would highly prefer the home delivery.

6.1.4 Sentence completion form

Using projective techniques, such as a sentence completion form, will facilitate the generation of "accurate information which is undistorted by interviewing problems or psychological barriers" (Will et al. 1996, 38). Sentence completion is a combination of a projective technique and a questionnaire. In this technique the respondents are provided with the beginnings of sentences and are asked to complete them in ways that are meaningful for them (Soley & Smith 2008, 132). The tests are easily administered, are amenable to group administration, can be qualitatively or quantitatively analyzed and can be used to assess motivations or attitudes. One of the strengths of the technique is that the respondents use their own expressions when giving the feedback. Soley and Smith (2008, 312) added that the technique can "uncover conflicted attitudes and values that are difficult to uncover with other types of measures". Will et al. (1996, 39) concluded that sentence completion is "useful for finding out about underlying feelings and attitudes towards a particular product or brand". (Soley & Smith 2008; Will et al. 1996.)

To obtain information on consumer's attitudes, preferences and innovative improvement ideas, a sentence completion form was created. The author presented the form to the Operations Director and Marketing Manager of DHL Express during the creation process. They both read the form through and came back with a few points that required re-consideration or re-framing. Before the actual data collection phase begun, the author tested the form with one randomly chosen consumer, to ensure that the form also worked in practice.

The form (Appendix 1) was given to consumers at DHL Express' Service Point in Vantaa where the consumers came to pick-up their parcels. Due to the limitation of the study, "the last mile delivery", only consumers who were picking-up a parcel were being approached. This specific location was chosen based on the fact that the first delivery attempt has been unsuccessful and, therefore, these particular consumers have already encountered an issue that has affected their perception of the service. DHL Express' core service is a door-to-door delivery and in these cases that has not been fulfilled. For some reason, this particular group of consumers has decided to pick the parcel up by themselves and have not requested a second delivery attempt. The purpose of the data collection was to identify reasons behind their choice and also thoughts of the other alternative options that are currently available. This group of consumers was familiar with the issues that are currently related to the last mile of a parcel delivery service for consumers and were assumed to bring valuable input and various improvement ideas. Additionally, the consumers were asked about certain alternatives that are not yet available in Finland but are being used in some other countries.

6.1.5 Design workshop with DHL Express employees

A collaborative design workshop contains a mixture of different service design methods, such as Business Model Canvas, Customer Journey Maps, Design Sketch Boards, etc. The aim of these workshops is to create fast a common understanding of targets and next steps. Due to their demanding nature resource wise, it is extremely important to plan these sessions carefully and well in advance. (Furnell 2010.)

Even though each of the workshops is different, they do follow a certain formula and that can be structured in advance. There are certain tips that are brought up every time there is a discussion about how a successful workshop session should be organized. One example is that most people recommend the facilitator to use ice breakers that will make the audience fail. When everybody fails, it's easier to relax a bit and start working more creatively. (Stickdorn 2013.)

No matter, what format of workshop is being used, there are a few basic principles to apply:

- Define what the desired goal of the workshop is and plan and time it accordingly.
- Invite diverse stakeholders and mix them up.
- Use presentations and working sessions in turns.
- Keep the basis of the discussion in data.
- Create a way to narrow down the alternatives.
- Document the results.

(Goodman et al. 2012, 553-554.)

A further objective of the study was to identify aspects of the last mile of a parcel delivery service concept that were highly valued by the consumers but disregarded by the company and vice versa. In order to identify these aspects, the data collection was extended to the company's side. The selected method for this part was a design workshop. The author had a discussion with the Operations Director and introduced a plan of the workshop, including a suggestion of participants. The suggestion did not have any specific people but a number of preferred participants and their organisational position per department. This way the group consisted of people with different backgrounds, various roles in the organisation and experiences from several touch points.

The author wanted to use design workshop method to find out, how well DHL Express knows what consumers want from the last mile of a parcel delivery service concept and what aspects of it the consumers value the most. Being one of main service providers in the industry, DHL Express and its employees have undoubtedly formed an understanding of consumer preferences. Based on the results from the design workshop, the employees' perceptions were collected and later on compared with the real consumer opinions in order to identify the most crucial similarities and differences.

Planning of the workshop included creating the overall framework, selecting the service design tools to be used and reflecting them with the aim of the workshop. Once the outline was clear, a more detailed planning took place, including choice of ice breakers, introduction of service design to the participants and an alternative plan, in case the original plan could not be followed.

The workshop was held on Tuesday October 8th 2013. The participants represented DHL Express' employees from the customer service and from the operational department. The session started with a brief introduction of service design principles and continued with short overview of the study context. Once the general themes had been covered, the participants were asked to create two separate personas of consumers in order to form a picture of the people belonging to this particular target group. The reason for using personas was to prepare the participants for the next task in which a thorough understanding of the target group was required.

In the beginning of the first actual task, the participants had 10 minutes time to think about the theme and more specifically, what kind of positive and negative feedback they had most commonly received from consumers within the topic. The participants worked individually and each comment that came into the participants' mind was written on a Post-it note. After this, all comments were presented to the group, a further discussion took place and

additional findings were included. As a result the group came up with more than a dozen insights of the context.

The positive insights included the following:

- An option to change delivery address (e.g. to work place)
- Evening deliveries in the Helsinki Metropolitan Area
- A call before the delivery attempt
- Friendly and professional customer service
- Speed

The negative insights included the following:

- Couriers do not call if the door is locked
- No notification of the upcoming delivery
- Customs clearance takes too long time
- Unsuitable delivery times
- The estimated delivery time window is too long
- Bad road signs to the Service Point
- Unprofessional personnel
- "No one takes things forward" (insufficient internal information flow)

During the discussion, the participants shared also their personal development ideas regarding some of the issues which consumers have experienced. These ideas were written on separate Post-it notes and combined with the original problem. These development ideas are presented in Figure 6 below.

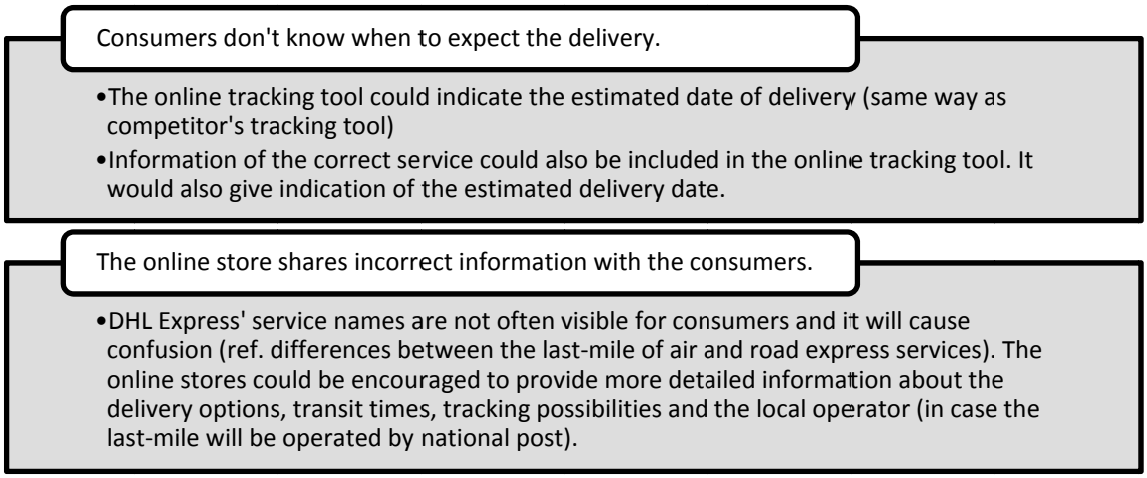

Figure 6: Development ideas from the employees

At this point the discussion was lively and everybody was bringing their inputs to the table. In order to get more detailed information from the employees, they were requested to create a customer journey map of an ideal last mile of a parcel delivery service concept. Their ideal service concept is presented in Figure 7.

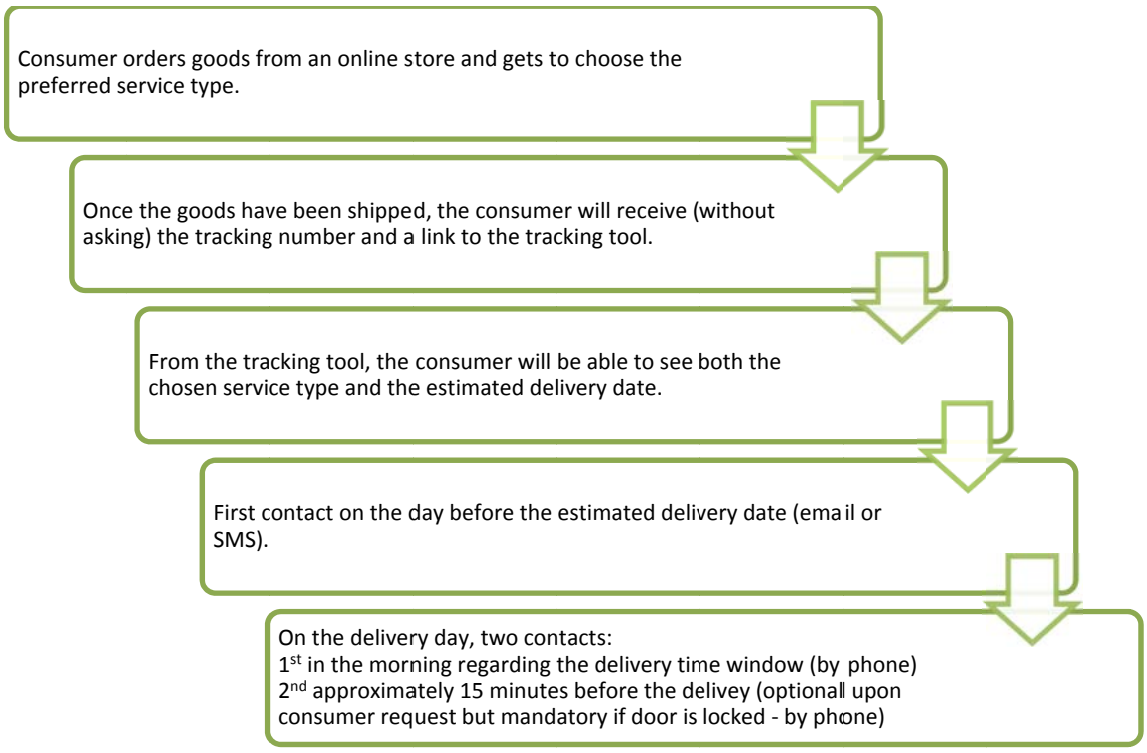

Figure 7: An ideal last mile of a parcel delivery service by DHL Express employees

Based on their prior experience, the employees considered it essential to provide the consumers with as much information as possible. In addition to the detailed information on the tracking tool, the group came up with a service concept that would contain three separate occasions when DHL Express would inform the consumer about the upcoming delivery. Most of these contacts would be done by phone. This indicates that the company's employees believe that consumers value a regular flow of information with highest possible accuracy and short delivery time windows. Another aspect which the employees presented was the consumer's possibility to choose between two different service types. This would allow the company to match the service qualities with consumers' expectations and wishes. The alternatives could, for example, include an option with faster transit time and home delivery whereas the other would be a slower option and consumers could pick the parcel up from the nearest post office.

6.2 Creation

The creation phase includes testing and re-testing ideas and concepts. The aim is to create and develop solutions based on the identified problems and in-depth insights that have been generated during the previous phase (Stickdorn & Schneider 2010, 130-131). In this Section, the methods that were used during the analyses and some of the results that were identified are being presented.

6.2.1 Analysing the data of the interviews and sentence completion forms

During the analysis phase the data that had been received from the consumers through contextual interviews and sentence completion forms was organised, studied, categorised and clustered according to the principles of qualitative research analysis (Creswell 2013, 186). After that the materials from the employee workshops were processed. Once both of the data had been processed, the results were compared and both similarities and differences investigated. This part of the process included working back and forth between the themes and the database until a comprehensive set of themes had been established (Creswell 2013, 186). Based on the analysis, a picture of the company's needs and the actual consumer needs was formed. This information was ultimately used as the foundation of the development work and was reflected throughout the whole project.

The sentence completion form was created in a paper format in both Finnish and English. It consisted of four sections: respondents' background information, their decisions regarding the parcel which they came to pick-up, their previous experiences with DHL Express and possible development ideas for the future. The background information was created with multiple choice questions and the other sections with sentence beginnings, including two additional multiple choice questions. Altogether, the sentence completion form consisted of 20 questions.

The respondent information included 8 questions which addressed respondent's gender, age, number of visits to DHL Express' Service Point, confirmation of courier's visit at the respondent's home, informing DHL Express about the decision to do a self pick-up, usage of tracking services and online shopping frequency.

The second section focused on reasons behind the respondents' decisions regarding the parcel that they had come to pick-up.

The third sections addressed respondents preferences; how much in advance would they like to get notification of the upcoming delivery, through which channel, when would they like to receive the parcel, would they allow delivery to their neighbour's apartment and from where would they prefer to pick the parcel up.

The fourth and final section collected respondents' views about the features they value the most when using DHL Express' services, their development ideas for the future regarding both DHL Express' services and parcel delivery services in general.

The sentence completion form was addressed to all consumers who came to DHL Express' Service Point to pick their parcel up. The form was available for the consumers between October 9th and October 14th 2013. The author was present at the location the entire time and had agreed a routine with the Service Point's personnel in order to identify the consumers in scope. During this time, 40 consumers were approached and 23 of them decided to participate in the survey. This is equivalent to 58 %. 16 of the respondents were men and 8 of them women. Most of the respondents were 18-25 years old, and the oldest respondents belonged to the group of 56-65 year olds. Among the respondents, 13 were visiting DHL Express' Service Point for the first time. For the rest of the respondents, this was the 3rd visit in average.

In 13 cases, the courier had tried to deliver the parcel but the respondent was not at home. Similarly, 13 respondents had informed DHL Express' customer service that they were coming to pick the parcel up. Almost 70 % of the respondents (16) had used DHL's online tracking system to monitor the status of their parcel. The high number of respondents who have used the tracking systems is likely to be caused by their shopping habits; for 3 of them this was the first time and 11 respondents (50 %) order goods from online stores almost once a month.

6.2.2 Content analysis

All responses were read through in order to revise the validity of the data, as suggested by Hirsjärvi et al. (2009, 221-222). Two of the responses were disqualified because the respondents did not belong to the target group. Despite the fact that these two responses were not analysed in terms of this study, the author read both of the documents through and shared the received feedback with departments to whom the content was addressed to.

The analysis was conducted according to the content analysis approach introduced by Silverman (2011, 64). The content analysis is a method of textual investigation and the idea is to establish a set of categories and count the number of instances that fall into each category. The author created an excel workbook for the analysis purposes. Each question was

presented at the top of a column and all the responses were processed under them. The author decided not to translate the answers, because some terms might have been altered during the process, causing misinterpretation of the respondents' true opinions. After that, all of the instances that had the same reason or comment were colour-coded (Figure 8).

Figure 8: Colour-coded answers

Finally a further statistical analysis was executed. In this analysis, the most commonly used comments are presented and the number of answers belonging to each category has been marked in parentheses. Tables 7-13 present further details about the statistical analyses. The author chose to present the below questions as examples because the information received from them is essential for the development work. The author considers these answers as the most important and interesting in terms of the scope of the study.

Sentence: I came to pick up the package from DHL Express Service Point because
• I was not at home when the courier tried to deliver the parcel (9) • I live/work close to the Service Point (4) • It was the only way to receive the parcel (4) • I needed the goods fast (3)

Table 7: Reasons why consumers choose the self pick-up option

The answers in Table 7 clearly indicate that most of the respondents come to DHL Express' Service Point to pick their parcel up if they have not been at home during the first delivery

attempt. Among the respondents who have provided more detailed information, four either live or work nearby and three needed their goods urgently. Interestingly, four respondents state that self pick-up is the only way to receive their goods.

Sentence: I did not request new home delivery time because
• It is not possible within the current delivery time options (6) • It was easier to pick the parcel up by myself (5) • I was nearby so it was fast and easy (3) • I needed the goods fast (2)

Table 8: Reasons why a new delivery time is not an option

When asked why a new delivery time was not an option for them (Table 8), most of the respondents (36 %) answered that self pick-up is the easiest option for them. Six of the respondents said that it is not possible for them because the currently available delivery time alternatives do not suit them. Two people justified their decision with the urgent need of the goods.

Sentence: I did not request the package to be delivered to another address because
• It was not an option for me (5) • There was no need to change the address (4) • I did not know it would be possible (3) • I needed the goods fast (2)

Table 9: Reasons why another delivery address is not an option

For the question, why did they not request delivery to another address (Table 9), most of the respondents answered that it was not possible for them. Four respondents told that there was no need to change the address and two wanted to receive the goods fast. Three respondents were not aware of this possibility at all.

Sentence: I would like to receive a notification of the estimated time of home delivery [x] hours before the courier arrives by phone/SMS/email
• I need the information 2-3 hours before the delivery (9) • I need the information 24 hours before the delivery (5) • I need the information 48 hours before the delivery (1) • By SMS (10) • By Email (3) • By phone or by SMS (3) • Any of the options (3)

Table 10: The preferred time and method for the pre-notification

Regarding the pre-notification (Table 10), most of the respondents (41 %) want to receive a notification of the upcoming delivery 2-3 hours before the courier arrives. The second most popular answer was 24 hours and one of the respondents would like to have 48 hours time to be prepared. In terms of the preferred information channel, a clear majority (45 %) of the respondents would prefer SMS notifications. There were three votes for all of the following categories; email, phone or SMS and any of the alternatives.

Sentence: I would like to have the package delivered to my home between [x] o'clock
• After 16:00 o'clock (14) • After noon (2) • No preferences (2) • In the morning (1)

Table 11: Desired time for the home delivery

When asked, what would be the ideal time to receive a parcel to their home (Table 11), 14 respondents answered "after 16:00 o'clock". This equals to 64 % of all respondents. Two respondents informed that they would be available after noon and one only in the morning. Additionally, two respondents did not have any preferences at all.

Sentence: If I am not at home when the courier arrives, the package may be given to my neighbour.
• Yes (6) • No (15)

Table 12: Attitudes towards suggestion of delivering the parcel to a neighbour

When suggested "*If I am not at home when the courier arrives, the package may be given to my neighbour*", 15 respondents were against the idea and six respondents agreed with it. This equals to 68 % of respondents voting "no".

Sentence: I would prefer picking the package up from
• Post office (5) • Helsinki city centre (3) • Existing DHL Service Point (3) • My home (1)

Table 13: Preferred pick-up location

There were only three respondents who considered the existing DHL Express' Service Point as their first choice for a self pick-up facility (Table 13). Five respondents would prefer local post office and three respondents vote for Helsinki city centre. Only one respondent had chosen home as the most pleasant option.

Sentence: I would like to develop DHL Express' home delivery regarding [x] in such a way that

• Regarding the delivery time (8)
  o so that it would be agreed in advance (3)
  o so that I could decide the time (2)
  o so that the delivery time would be in the evening (2)
  o so that I could choose from the following: morning, afternoon, evening (1)

Table 14: Suggested development ideas for DHL Express

When asked how they would like to develop DHL Express' home delivery, the answers were all focused on the delivery time (Table 14). Three respondents suggested that the delivery time

should be agreed in advance. Two respondents would like to decide the time by themselves and two requested for evening deliveries. One of the respondents would like to choose between different times of a day: morning, afternoon or evening.

6.2.3 SWOT analysis

From the content analysis, the author found characteristics that were repeatedly brought up by the respondents. These characteristics were then categorised with a SWOT analysis (Figure 9). The characteristics were divided into the following categories: strengths, opportunities, weaknesses and threats. The positioning of the characteristics helped the author to evaluate DHL Express' service features from the consumers' perspective. Based on the frequency of the characteristics, the author additionally identified which of them are perceived strongly by the respondents and marked those in red. Some of the characteristics are conflicting and were marked in bold in order to distinguish them from the group.

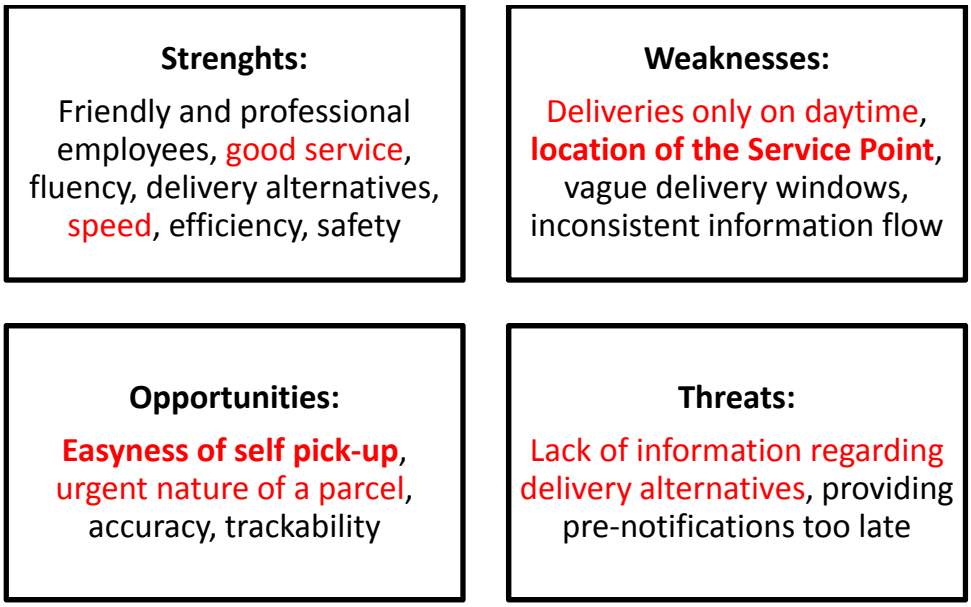

Figure 9: SWOT analysis of DHL Express' parcel delivery service for consumers

The SWOT analysis (Figure 9) revealed that the respondents value most good service quality and speed of the deliveries. On the other hand, the existing self pick-up option was considered as easy to be used, especially when the goods are needed urgently. Since the respondents' attitude towards self pick-up was so positive, it is considered as an opportunity. The biggest weaknesses were lack of evening delivery option and the location of DHL Express' Service Point. All threats in turn were related to insufficient information; the respondents were not aware of all possible delivery alternatives and the pre-notifications were received either too late or not at all.

6.3 Reflection

The reflection phase is all about prototyping. The ideas and new concepts that have been generated during the creation phase need to be tested. Due to the intangible nature of services, the testing will be done by using various methods related to visualisation and staging (Stickdorn & Schneider 2010, 132-133).

6.3.1 Storyboard

Storyboards are being used when visualising a certain sequence of events. The most common target for the visualisation is the event when the service is being used and a service encounter is taking place. Storyboards are used to provide perspective on a service or prototype. It is an efficient way to investigate the situation from the customer's point of view. (Stickdorn & Schneider 2010, 186-187.)

The author created a storyboard illustrating the sequence of events and service encounters that the existing last mile of DHL Express' parcel delivery service contains (Figure 10). Based on the feedback that was received from the consumers, the events which will require most development work were highlighted. The storyboard was used when the author presented the results of the study to the Operations Director for the first time. This particular tool was used because of its efficiency when describing different situations in a visual manner. The author wanted the Operations Director to receive a concrete picture of the consumers' experiences while using DHL Express' service.

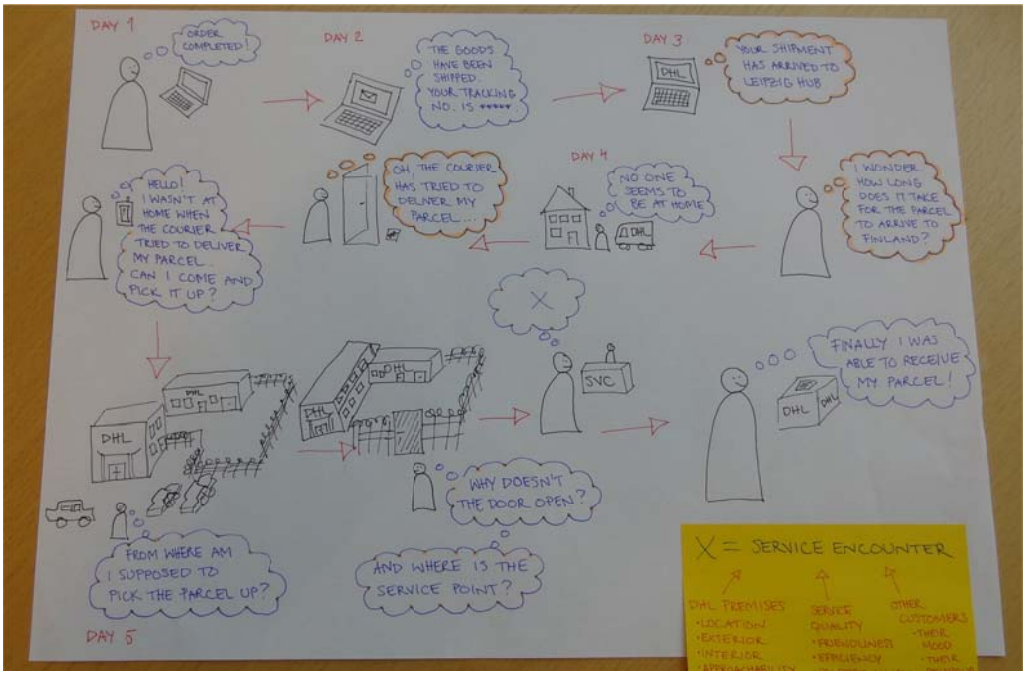

Figure 10: Storyboard of the existing sequence of events and service encounters

The storyboard was presented to the Operations Director on October 29th 2013. In the beginning of the meeting, the summarised results of the sentence completion form and some of the most interesting details regarding the complimentary methods were introduced. After that the storyboard was used to create a vivid image of the consumers' experiences. Both the author and the Operations Director found the tool to be really useful because it led the discussion through all individual events and ensured that a consistent understanding of the course of events was established. Once the consumers' story had been told, the author brought up the highlighted events and explained why and how they should be developed.

After seeing the visualisation and hearing about the results the Operations Director told that he considers the findings interesting and extremely useful. Due to the global nature of the company, the country organisation has limited possibilities to change any existing processes without the headquarters' approval. The findings of this study include some of the first concrete evidences that support ideas the Finnish operational department has suggested previously but which have not been approved by the headquarters. Therefore, the Operations Director has requested the author to present the findings from this thesis to the European Operations Director who will visit DHL Express Finland in December. Additionally, few minor changes will take place already within the next few weeks, based on the feedback of the study.

6.3.2 Cross-check with results of previous studies

As described in the theoretical part of this thesis, the increase of e-commerce has had significant effects on the logistics sector. This topic has been investigated by various researchers who have identified certain recommendations for the logistics service providers. These recommendations include the following:

Goebel et al. (2012, 584): *Logistics service providers should make their services more predictable.*

Weltevreden (2008, 639): *Logistics service providers should deliver shipments to conveniently located collection-and-delivery points after a delivery failure.*

Xing et al. (2011, 351): *Logistics service providers should ask consumers about alternative options if nobody is at home before the delivery, and give them more choices about how and when they receive orders.*

Additionally, the studies have uncovered characteristics that consumers require from the logistics service providers:

Li et al. (2006, 183): *Consumers want goods delivered at a high speed with complete order flexibility and convenience.*

The answers that the respondents in this study have given are equivalent with the findings of the previous studies (Goebel et al. 2012; Weltevreden 2008; Xing et al. 2011 & Li et al. 2006). None of the findings are in discrepancy with one another either. Therefore, the author has taken all of the above aspects into consideration while creating the development ideas for the last mile of a parcel delivery service concept for consumers.

6.4 Suggestions for implementation

The final phase in the process is implementation. The target of the implementation is a service concept which has been generated and tested during the previous phases. A clear communication and engaged employees are keys to successful implementation. In an ideal situation, the implementation phase should also be followed by another exploration phase in order to evaluate to progress and ensure the iterative nature of service design process. (Stickdorn & Schneider 2010, 134-135.)

The implementation is left out from this thesis. It will be executed after the findings and suggestions have been introduced to the management group of the case company. Once the outcomes have been presented, the implementation phase is supposedly launched.

7 Empirical results

In this Chapter the existing last mile of a parcel delivery service concept including all of its process variations will be described. Additionally, the development process and the outcomes of the research are being introduced.

7.1 Description of the current parcel delivery process

A blueprint of DHL Express' parcel delivery service concept, including the last mile features and imagined interaction between the consumer and the online store, is shown in Figure 11. This Figure represents the process of air express shipments. In the beginning of the year, DHL Express made significant changes to the road express service's operation processes and the last mile of the road express service is today completely different than air express services. Due to these changes, only consumers whose parcels have been transported by air express service will pick their parcels up from the DHL Express' Service Point. Therefore, the road express service has been excluded from the scope of this study.

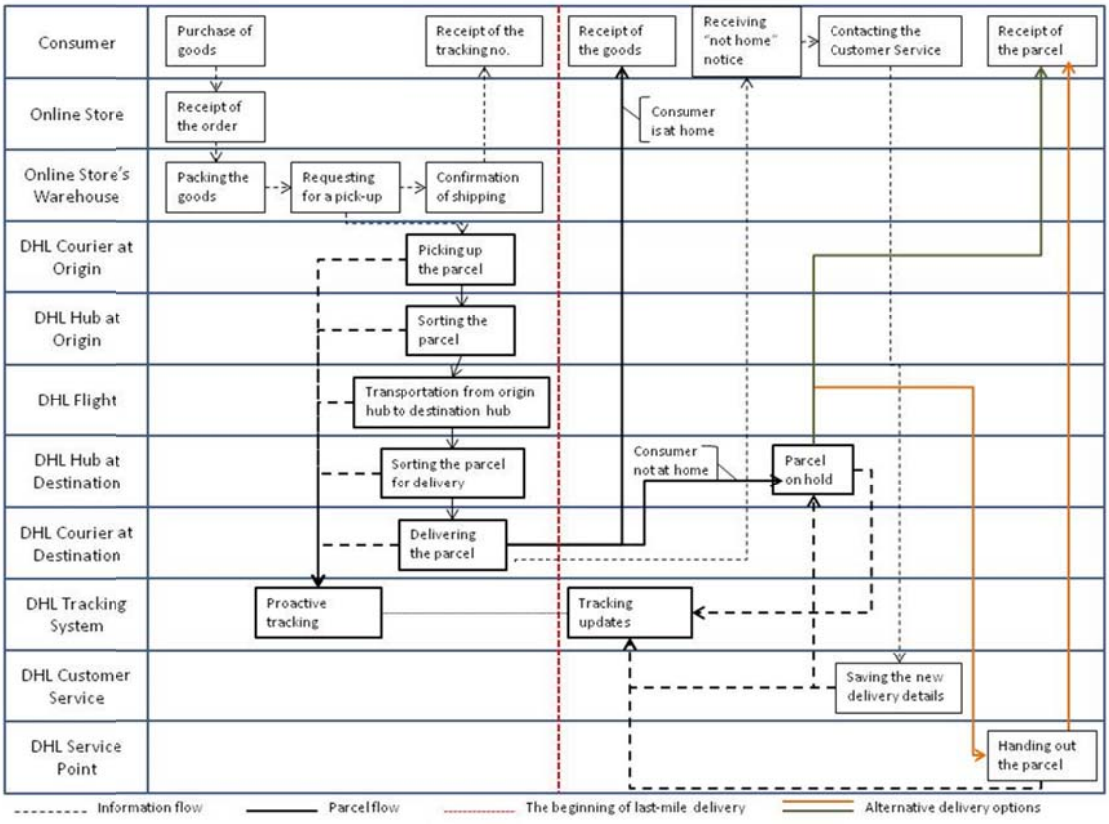

Figure 11: Description of the current parcel delivery process

The focus of this study is on the last mile of DHL Express' parcel delivery service concept. However, the earlier phases of the service are also presented because they have a significant

influence on how the service will be delivered to the consumer. The author has visualised all alternatives that are available for the consumer, in case the first delivery attempt fails (Figure 11). These include agreeing a new delivery time for the same address, confirming a new delivery address or the option to pick the parcel up from DHL Express Service Point. These alternatives are being described in detail and evaluated in Section 7.2.1.

There are several factors that affect the consumer's experience of the last mile of a parcel delivery service concept. DHL Express is responsible for a number of them but certain factors are uncontrollable for the company and take place at an earlier stage of the service process. One of the most important service features for consumers is to receive a pre-alert advising that their parcel is about to be delivered, with the estimated time of delivery. However, if the online store's representative has not included the consumer's phone number on the air waybill, DHL Express is unable to contact him or her in advance. Another way to get the pre-alert is through DHL Express' online tracking tool, but this can only be done, if the consumer has received the tracking number from the online store and is actually going to use it. This information flow is not under DHL Express' control and, therefore, the company can only advise the online store to share that piece of information with the consumer. In case the consumer receives the tracking number, he or she can track the parcel as often as needed. (Appel 2013; Moberg 2013.)

If the online store operates ideally, and shares the tracking number with the consumer and the consumer's phone number with DHL Express, the success of the service experience is almost completely in the hands of DHL Express. The only thing the company cannot affect is whether the consumer answers his or her phone when the courier tries to call them. Everything else, from the actual time the courier calls the consumer to the successful delivery of the parcel and possible service recovery actions are controllable for DHL Express and, therefore, candidates for development targets. (Appel 2013; Moberg 2013.)

7.2 Characteristics of DHL Express' current parcel delivery service concept

When using Collier's and Meyer's (1998, 1231) service delivery system matrix to position the last mile of DHL Express' parcel delivery service concept, it is clear that the service matches "the provider routed category". The provider routed services allow customers only a narrow selection of alternative pathways through the service delivery system (Collier & Meyer 1998, 1234). These types of services are highly repeatable and the service provider designs a high degree of control into the service delivery system. In DHL Express' case, the consumer is able to choose from two delivery options; a signed delivery to the given address or a self pick-up from DHL Express' Service Point. (Collier & Meyer 1998, 1231.)

In order to evaluate the current last mile of DHL Express' parcel delivery service concept, the author has chosen to visualise the service concept (Figure 12) also by using Gilmore's (2003, 19) model of core and secondary services. This particular model was chosen because it adjusts well to the context of the study and allows a closer exploration of the characteristics that are included in the service. During this investigation, the core service will remain unchanged and only the secondary services will be researched. The results of this study will include suggestions how the secondary services should be developed.

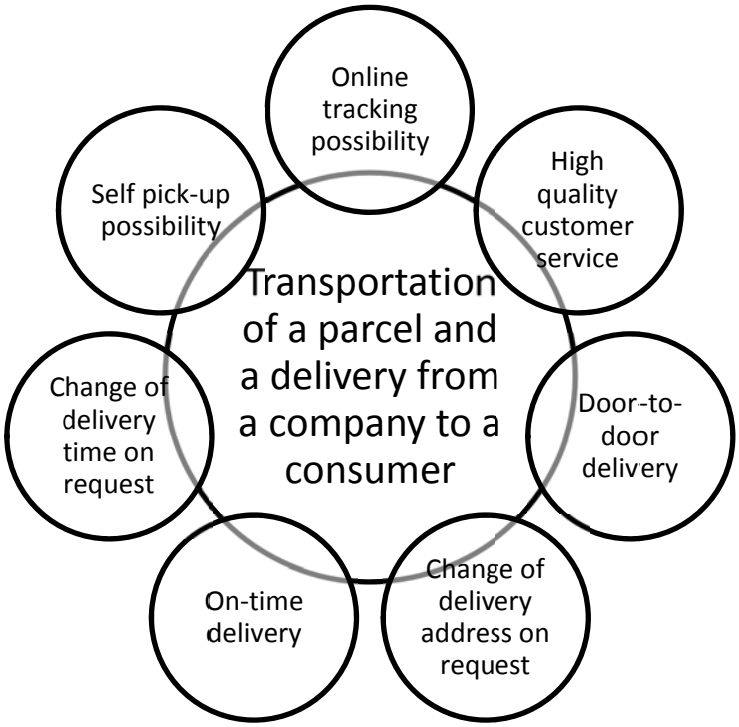

Figure 12: Core and secondary services of the current last mile of DHL Express' parcel delivery service concept

The core content of the service is a transportation of a parcel and a delivery from a company to a consumer. The consumer's need is to get the goods, which he or she has bought online, delivered to his or her home. The secondary aspects of the service package consist of a number of services such as online tracking possibility, high quality customer service, door-to-door delivery, change of delivery address on request, on-time delivery, change of delivery time on request, and a self pick-up possibility.

The consumer's experience of the process depends on various different features, including the availability of air waybill, accompanied by tracking and tracing, proactive communication from DHL Express' side and the success of the delivery attempt. In case the first delivery attempt fails, there will be additional service encounters and features that have a major

effect on the experience, such as discussion with DHL Express' customer service and the selection of alternative delivery options (change of address, delivery time and self pick-up).

The outcome of the service is that the consumer receives the goods he or she has bought from an online store directly to his or her home. The value that this service brings to the consumer is related to the consumer's ability to order goods abroad, to follow the movements of the parcel, and to receive the goods to the requested location. Additionally, some consumers value the short delivery times and are prepared to pay more in order to receive the goods faster.

7.2.1 The current selection of alternative service delivery routes

During different phases of the parcel delivery service, the consumer is being provided with few alternative options. Some of these options are offered during the time of the purchase, a few before the first delivery attempt and the rest after the first unsuccessful delivery attempt.

During the purchase of the goods

At the time of purchasing the goods from an online store, the consumer may have the possibility to choose whether he or she wants to get the goods delivered to his or her home or to another pre-defined address. However, this option is entirely up to the online store's practices. Some of the stores require the invoicing address to be the same as the delivery address, whereas other stores allow different addresses. There is no general guidance regarding this rule, but the reasons for not allowing the variation are typically related to safe and security.

Before the first delivery attempt

After the purchase has been made and the goods have been picked up, the consumer has an opportunity to give new delivery instructions to the service provider. These include the following:

- changing the delivery address,
- requesting the delivery at a certain time or date, or
- informing the usage of self pick-up option.

There are some variations between different logistics service providers, but these options are currently available for DHL Express' customers.

After the first unsuccessful delivery attempt

When the first delivery attempt fails, the courier leaves a note at the consumer's door where the consumer is being requested to contact DHL Express' customer service in order to agree on the next possible steps. Currently these steps include the following three options:

- New delivery time
- New delivery address
- Self pick-up from DHL Express' Service Point

From these alternatives, agreeing new delivery time or new delivery address are considered as preferred options, because DHL Express' core service is a door-to-door delivery and the consumers have usually also paid for it (Appel 2013). Picking the parcel up from DHL Express' Service Point will cost the consumer both money and time. Nevertheless, 15 % of consumers whose parcel could not be delivered are choosing this option every day (Moberg 2013). This group of consumers are the main people of interest from the author's point of view. For that reason, the data collection for this study took place at DHL Express' Service Point. There the author was able to meet this particular group of consumers and gain further insight on why they preferred the self pick-up option and what could be done to ensure a successful door-to-door delivery for them as well.

7.2.2 Acknowledged challenges

Most of the parcels delivered by DHL Express are within business-to-business context. This means that there is usually a reception or mailroom with receptionist who can sign the shipment on behalf of the consignee. That is also the biggest difference between business-to-business and business-to-consumer context. Private residences seldom have a reception and, therefore, the courier should call the consignee in advance to ensure that the person is present during the time of the delivery. However, this is not done every time and the couriers also fail to reach the consumers. That leads to failed delivery attempts. DHL Express' procedure states that if the consumer is not at home, the courier will leave a note at the front door. Via this note the consignee is requested to contact DHL Express' customer service in order to agree a new delivery time, change the delivery address or advice that he or she will come to pick the parcel up from DHL Express' Service Point. (Appel 2013.)

Problems for consumers

The standard delivery window for DHL Express is on working days, during business hours. Most of the consumers are at work during this time and, therefore, unable to receive their parcels. This is ultimately the single biggest problem for consumers. If an evening delivery is not

available, and the consumer is working during the business hours he or she will only have the option to request delivery to another address or to use the self pick-up option.

In case the consumer tracks the shipment prior the delivery attempt, he or she may also contact DHL Express' customer service proactively in order to propose a new delivery time, a change of the delivery address or advise that he or she will come to pick the parcel up from DHL Express' Service Point. However, usually the consumers are not aware of these possibilities, unless they are experienced online shoppers who want to track their shipments and know when to expect the delivery. There are various reasons for the lack of awareness, but one of them is the fact that not all online stores share tracking numbers with the consumers and advise them to track the parcels online. (Moberg 2013.)

Consumers, who live in buildings with around-the-clock locked entrance doors, should always use DHL Express' online tracking system because they will not receive the "not home" notifications. If they do not monitor the parcel's whereabouts, they might not know that the courier has tried to deliver the parcel. This information would reach them only as soon as DHL Express' customer service agent managed to provide the information either by phone or by email, causing at least 24 hours delay. (Moberg 2013.)

Problems for service providers

As mentioned earlier, the couriers do not always call the consumers before the first delivery attempt. However, in most of the cases the problem is not that the courier does not have time, but the fact that the details provided by the online store's representatives are insufficient or incorrect. Due to the need to inform consumers in advance about the upcoming delivery attempt, it is crucial that the consumer's phone number has been stated on the air waybill. If this information is missing, DHL Express' courier will be unable to contact the consumer prior the first delivery attempt because there is usually not enough time to start searching for the correct phone number. (Appel 2013.)

Sometimes the locked main entrance doors are also causing problems for the service providers. In these cases, it is impossible for the courier to gain access to the consumer's apartment unless he or she has been reached before the delivery. And when the consumer's front door cannot be accessed, the courier is also unable to leave the "not home" notification. In these circumstances the only way to inform the consumer of the failed delivery attempt is that a DHL Express' customer service agent will manage to reach him or her. If the consumer's phone number is available, there is no issue but when the phone number is not available, the customer service agent will need to start looking for the number through finder services. Sometimes even that will not work and the only option is to request

DHL Express' customer service in the origin country to contact the shipper in order to receive contact details for the consumer. (Moberg 2013.)

7.3 Proposed last mile of DHL Express' parcel delivery service concept

Figure 13 is an illustrative version of the analysed empirical data (sections 6.2.1 - 6.2.3) where the weak spots of the service concept have been identified and suggested improvement ideas have been introduced, including the benefits that these actions would create for the consumers.

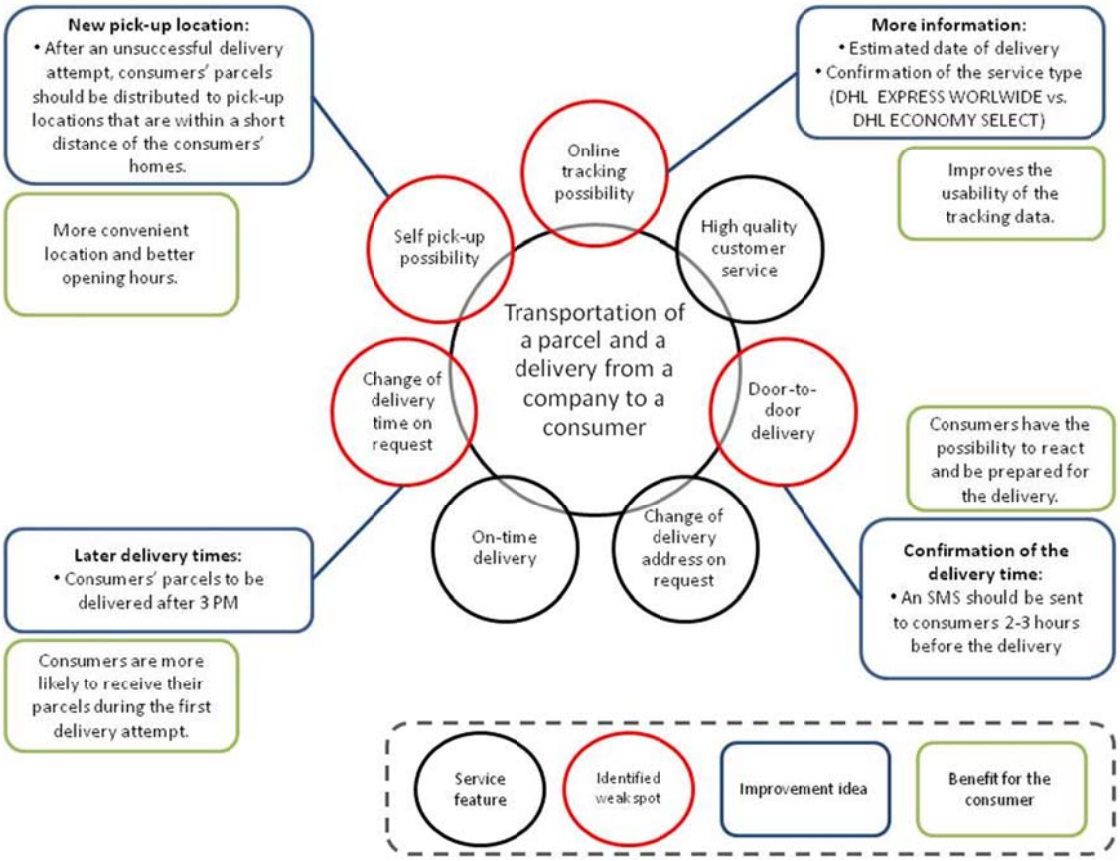

Figure 13: Service concept with development targets

Two of the improvement ideas are related to the information flow between DHL Express and the consumers. Adding more information to the online tracking system would increase the usability of the data. At the moment, consumers can monitor the status of the shipment but do not necessarily understand what the status updates mean. For example, when the tracking system shows that the shipment has arrived to the Leipzig hub, the consumers cannot know that it is the last stop before the shipment will arrive to Finland. This information would be easily shared by advising the estimated date of delivery. The recommendation, to confirm the service type, would provide valuable information to the consumers, because the operational

processes between air and road express services are different. Having this information would act as an indicator of the actual logistics operator who will deliver the parcel and, therefore, enhance the clarity of the upcoming events.

The second information-related improvement idea focuses on the interaction between DHL Express and the consumers. Due to the lack of communication, not all of the consumers have received pre-notification of the upcoming delivery attempt. Based on the feedback received from the consumers, the author recommends that an SMS confirming the estimated time of delivery will be sent to the consumers approximately 2-3 hours before the delivery attempt. When combining these development actions, the information flow will become significantly better.

The third point to be developed is the delivery time. According to the majority of the respondents (Table 11), DHL Express should adjust its consumer delivery times by changing them towards evening times. An ideal delivery window would be 15.00-20.00 o'clock. Added to the improved information flow, this modification will suit many consumers who are currently forced to choose the self pick-up option.

The final development idea is related to the location where consumers can pick their parcels up. The current option, DHL Express' Service Point is convenient only for those who either live or work close to it. Therefore, the author suggests a new network of pick-up locations to be established. This could be done by handing the shipments that were undeliverable over to a subcontractor, whose existing network consists of several pick-up facilities within a short distance of residential areas. The author would encourage the company to start a further pilot phase that would be conducted in the Helsinki Metropolitan Area.

7.4 Comparison of consumers' and company's perceptions

The results of this study suggest that consumers' expectations of the last mile of a parcel delivery service concept are not as high as many of DHL Express' employees have thought. In fact, based on the author's findings from this study, consumers appear to be quite flexible in terms of the preferred delivery time. In addition, the possibility of self pick-up is being considered as an easy alternative. However, there are a few aspects of the service which seem to cause the most dissatisfaction; lack of information regarding general service features and estimated time of the delivery, the limited selection of available delivery times and location of the self pick-up facility. Some of these, such as occasional absence of confirmation of the estimated delivery time, were acknowledged by the company already, but had not been tackled consistently. There are probably various reasons for this but one of them seems to be the company's false interpretation of consumers' true requirements.

While analysing the data the author made an interesting observation; DHL Express' employees assume the consumers' expectations and requirements to be on a significantly higher level than they actually are. This can be seen when comparing the employees' illustration of an ideal service concept (Figure 7) with the results received through the sentence completion form (Tables 7-14). When the presumption of consumers' requirements is as high as the one created by DHL Express' employees, it is no wonder that they felt incapable to meet these requirements. As an example, the employees designed a service concept which included four separate contacts regarding the estimated delivery time of a parcel (Figure 7) whereas the consumers would be satisfied with just one contact, approximately 2-3 hours before the delivery (Table 10). Additionally, majority of the consumers would prefer receiving the information by SMS (Table 10), while the employees supposed them to prefer a call.

Additionally, the operational department of DHL Express Finland was reluctant to introduce a new alternative to the consumers; delivery of a parcel to the consumer's neighbour. It was assumed that Finnish consumers would not be willing to allow their goods to be left at their neighbours'. However, when the consumers were asked about this kind of an alternative, almost one third of them told that they would allow it. Based on the fact that this was the first time the consumers were approached with the suggestion and several respondents answered "yes", the author interprets the results as positive and encouraging. To sum up, the above examples clearly demonstrate how important it is to ask from the consumers what they think about the service rather than make assumption.

8 Summary and conclusions

The purpose of this thesis was to investigate how the last mile of a parcel delivery service could be developed. The empirical part was conducted by using the service design process to collect empirical data, analyse it, and to create development ideas. In the data collection the author used observation, contextual interviews and sentence completion form to gain deeper insights about the existing service concept and the consumers' perceptions of it. Additionally, the company's employees were involved in the process through a design workshop. This was done in order to find out answers to the sub questions of the empirical part.

The observation was executed during visits to DHL Express' Service Point and by participating on a delivery route with a courier. Contextual interviews were held during the observation visits to Service Point, because the author wanted to both see how the consumers interact during the service encounter and what did they think about it in a more detailed level. The sentence completion form was the main research method and it was designed to gain insights of the consumers' attitudes, preferences and innovative improvement ideas. The respondents were chosen among consumers who came to pick their parcel up from DHL Express' Service Point.

8.1 Answers to research question and sub-questions of empirical part

In this Section the findings from the study will be summarised. This will be done by answering the main research question and the sub-questions of the empirical part. The findings that are presented below arose during the service design process.

How to develop the last mile of a parcel delivery service concept for consumers?

Already before starting the investigation, it was obvious that the existing last mile of DHL Express' parcel delivery service concept was not suitable for consumers. During the collection of the empirical data, this perception became even stronger. According to the respondents, the service is not functioning well due to problems with information flows, available delivery times and location of DHL Express' Service Point. The data revealed that the respondents considered self pick-up as an easier option than agreeing a new delivery time, even though the location of the Service Point was not ideal for them. This was a clear indicator of the problems' seriousness.

One of the most interesting findings was that the consumers used a term "appointment" when discussing of the delivery attempt. For them the delivery attempt is something that should

occur only by mutual agreement during a pre-defined time. This is in line with Xing et al.'s (2011, 351) suggestions on how to increase the success rate in the first delivery attempts, where the focus is on the information flow and the selection of available alternative delivery options. The respondents of this study are asking for a pre-notification by SMS, approximately 2-3 hours before the delivery attempt and to receive the parcel after 3 PM. In terms of the self pick-up, the respondents would prefer picking the parcel up from a location that is close to their home.

What kind of a concept is DHL Express' existing parcel delivery service for consumers?

DHL Express' existing parcel delivery service concept was originally developed for business customers and has not yet been modified to meet the consumers' requirements. It is a door-to-door delivery service including shipment tracking and tracing. In case of a failed first delivery attempt, there are alternative options to choose from; new delivery time, new delivery address or self pick-up. During this study it was identified that approximately 15 % of the consumers choose self pick-up option and others agree either a new delivery time or address.

There are certain aspects of the service which are uncontrollable for DHL Express. For example, if the online shop does not provide the consumer's phone number on the air waybill, DHL Express' courier is unable to contact him or her prior the first delivery attempt. This has a significant effect on the service encounter perceived by the consumer. Additionally, lack of information from the online store's side to the consumer affects the consumers' possibilities to monitor the shipment's status. Although these kind of "uncontrollable" challenges are harder to solve, they cannot be disregarded by the company. It will require a lot of education and follow-up actions but is something that can be achieved over time.

All in all, the service concept has been designed to be highly controllable for the company, including only little if any customisation. When the design is this consistent, it would be beneficial to communicate it openly to consumers. It could decrease the amount of unnecessary inquiries regarding service features and simplify things from the consumers' point of view.

What are the characteristics of the last mile of DHL Express' parcel delivery service concept?

The findings from this study revealed that in terms of service characteristics the consumers value the same characteristics as the business customers. This was rather surprising, because both the author and the company had assumed there to be differences. The answers from the

sentence completion form demonstrated that when it comes to DHL Express' services, the respondents valued "speed" more than anything else. It indicates that there is a true need for fast express delivery services also in the e-commerce context.

In general level, the respondents were quite satisfied with DHL Express' parcel delivery service concept. There was significantly more positive feedback than negative and the negative comments were related mainly to two areas; delivery times and information flows. Already these findings confirmed that the problems lie within the last mile context. It verified that the subject of this study was the correct one, in order to improve the parcel delivery service for consumers.

According to the results, consumers are familiar with DHL Express' online tracking system and take advantage of it. However, that information provided through it is not sufficient enough and consumers expect DHL Express' courier to contact them before the first delivery attempt. "One cannot attend an appointment, unless one knows that it is going to take place." However, based on the findings the preferred form of contact is not a call but an SMS. At the moment all couriers do not contact the consumers in advance and that is one of the most critical issues that need to be fixed. Additionally, most of the respondents considered DHL Express' delivery times to be inadequate. There is a clear demand for deliveries after 4 PM.

What are the differences between consumers' and company's perceptions of the service?

The data that was collected during the design workshop with DHL Express' employees revealed that the employees' assumptions of the consumer requirements are on a much higher level than the situation is in the real life. The employees created a customer journey map of an ideal service concept (Figure 7) which contained, for example, four contacts from DHL Express' side regarding the estimated time of the delivery. According to the consumers', they would only need one contact (Table 10). Additionally, the employees would have invested in the home delivery, whereas the consumers did not value it that much. For them it is more about the convenience.

Another interesting difference concerned the consumers' willingness to allow parcel's delivery to a neighbour. All of the employees' with whom the author had discussions were confident that Finnish people do not want their goods to be delivered to their neighbours. So when the results revealed that 6 out of 23 respondents answered "yes", it came as a big surprise. In this connection, when it was the first time that any Finnish logistics service provider suggests such of an idea and the amount of positive answers is not a null, the result is being considered as an extremely encouraging.

Additionally, the fact that there was more positive feedback than negative was a pleasant surprise for the company's employees. Most of them were expecting to hear quite a lot of criticism and complaints. It clearly indicates how much higher the employees have set the bar. According to the results of this study, the consumers are mostly happy with the service. An extreme example is that some of the consumers who were requested to participate in this study actually declined based on their opinion that the service is already functioning well. It does not mean that the service would not need to be improved, but it does suggest that the company is already on the right track.

8.2 Conclusions

In a general level, the consumers are more satisfied with the current service concept than DHL Express has thought. That may be a result of the fact that consumers seem to value the same service qualities as the business customers. Because the service concept has been originally created for business customers, the features that consumers would prefer being developed, include mostly practical details related to the actual delivery of the goods.

Based on the author's perception of the empirical results, there are a few aspects in the last mile of DHL Express' parcel delivery service concept that need to be improved. The suggestion of desirable actions includes improvement ideas that have been created in such a way that their implementation would affect the main problem areas in particular. Despite the fact that the ideas have roots in the consumer feedback, the author has justified them by introducing benefits that these development ideas would bring to DHL Express as well. The recommended development ideas have been presented in Table 15.

Current situation	Improved situation	Justification
Consumers are able to track the parcel online (www.dhl.fi) but cannot see an estimation of the delivery date.	The online tracking tool calculates the estimated date of delivery and confirms the correct service type (air or road express).	Consumers know when to expect the parcel and are able to adjust their schedule if needed. → Less failed delivery attempts.
Consumers are not always contacted in advance.	Courier sends a pre-notification 2-3 hours in advance by SMS with instructions how to act if the suggested time does not suit the consumer.	No calls from unknown phone numbers and the information will reach the consumer quickly and efficiently. → Less calls to DHL Express' Customer Service.
Couriers try to deliver consumers' parcels during business hours.	Consumers' parcels to be delivered after 3 PM in Helsinki Metropolitan Area.	More consumers will be at home during the first delivery attempt. → Less failed delivery attempts.
Parcel can only be delivered to consignee whose name is on the air waybill. (Unless a power of attorney has been signed.)	A pilot phase to be launched where consumer's parcels can be delivered to the neighbour if a certain pre-defined criteria will be met.	Consumers do not need to travel long distances in order to receive their goods. → Less failed delivery attempts.
Consumers can pick the parcels up only from DHL Express' Service Point.	All consumer shipments will be handed over to a subcontractor, if the first delivery attempt fails. The subcontractor will distribute the parcels to pick-up locations that are situated close to the consumers' homes.	The locations provided by the subcontractor are situated closer to consumers' homes and have wider opening hours than DHL Express' Service Point. → Less parcels being stored at DHL Express' terminal.

Table 15: Current situation versus improved situation

These development ideas were introduced to the Operations Director. He considered them interesting and truly valuable. In addition, the Operations Director told that some of the development ideas support views which the company has had previously but of which there has not been any concrete evidences before this study. The results and development recommendations will be used as the basis when the last mile of DHL Express' parcel delivery service concept is being adjusted to meet the requirements of consumers. In order to obtain a regional approval for the changes, the Operations Director has requested the author to participate in the process by presenting the results of the study to the European Operations Director in an upcoming performance review meeting that will take place in December.

9 Further consideration

The results of this thesis have provided interesting insights on how the last mile of DHL Express' parcel delivery service concept should be developed in order to meet the consumers' requirements. When the improvement ideas that were received from the consumers are taken into consideration in designing a new and improved last mile of parcel delivery service concept, it will enhance the consumers' satisfaction and usability of the service. Additionally, the author identified positive consequences for the company as well, including both cost savings and increased operational efficiency. These consequences will be used as a motivational factor when the country organisation requests the headquarters' approval to proceed with the process.

Service design process was used as a method while analysing the empirical data. The data was collected by using a sentence completion form, observations, design workshop and contextual interviews. The combination of these methods proved to be an excellent choice because it enabled a lot of in-depth information from both the consumers and the employees of the company. Thus, it prevented some possible misunderstandings from occurring since the author gathered also visual evidences to strengthen the written comments. The supporting sightings were useful already when presenting the results to the Operations Director and other company employees, due to their strong prediction of the situation. After all, no one was expecting to find out that the consumers' overall experiences of the service would be as positive as they turned out to be.

This thesis, its findings and the collected empirical data provided a lot of useful material which the case company can utilise at the later stages of the project. DHL Express had not involved the consumers in any previous development processes but based on the success of this thesis, the company will most likely conduct similar case studies in the future. The author in turn has developed her professional skills and understanding of the logistics industry remarkably. During this project the author's knowledge has improved significantly, for example, in the fields of service design, co-creation, user experience and the last mile logistics.

As the implementation phase was excluded from the scope of this thesis, the author would suggest the company to conduct a follow-up study after the improvement ideas have been implemented. This would ensure that the iterative nature of service design processes would be maintained and the final outcomes could be fine tuned if needed. At the same time, DHL Express could start applying service design methodology in its development projects. The author considers it to suit DHL Express' operations quite well.

In terms of a further research, the author suggests that an application could be designed to improve the information flow between DHL Express and the consumers. Since most of the respondents in this study were relatively young, they are probably using smart phones and would, therefore, be willing to use an application designed to shipment monitoring and communication purposes. A more detailed contents and further design of the application would be worth investigating.

All in all, this is the time for DHL Express to start designing its transportation services by taking the consumers into consideration. Creating a well functioning business-to-consumer service would bring competitive advantage for the company and strengthen its position as a market leader. A good starting point would be to focus on the company's slogan: "Excellence. Simply Delivered." By putting the slogan into practise, especially through following the guideline of "keeping it simple", would be the best way forward.

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Figures

Tables

Attachments

Attachment 1: Sentence completion form

DHL Express haluaa kehittää kuljetuspalveluitaan ja vastata paremmin yksityisasiakkaiden tarpeisiin. Tämän kyselyn avulla pyrimme selvittämään mielipiteitänne pakettien kotiinkuljetukseen liittyen. Kysymykset koskevat sekä nykytilannetta että tulevaisuuden kehitysideoita.

Taustatietoja

Olen: ☐ Mies ☐ Nainen

Olen: ☐ 18-25 v. ☐ 26-35 v. ☐ 36-45 v. ☐ 46-55 v. ☐ 56-65 v. ☐ yli 66 v.

Asioin DHL Expressin Palvelupisteessä ensimmäistä kertaa. ☐ Kyllä

☐ Ei, tämä oli ___ käyntini tänä vuonna

DHL Expressin kuriiri oli käynyt kotiovellani, mutta en ollut paikalla. ☐ Kyllä ☐ Ei

Olin ilmoittanut etukäteen noutavani paketin Palvelupisteestä. ☐ Kyllä ☐ Ei

Tarkkailin paketin kulkua internet-sivujen lähetysseurannassa. ☐ Kyllä ☐ Ei

Kuinka usein tilaatte tuotteita verkkokaupasta:
☐ Tämä oli ensimmäinen kerta
☐ 2-4 kertaa vuodessa
☐ 5-11 kertaa vuodessa
☐ Vähintään kerran kuukaudessa

Jatka lauseita siten, että ne kuvaavat parhaiten mielipidettäsi.

1. Tulin noutamaan lähetyksen DHL Expressin Palvelupisteestä, koska _____
   _____
   _____
   _____
2. En sopinut uutta kotiintoimitusaikaa, koska _____
   _____
   _____
   _____
3. En pyytänyt toimitusta toiseen osoitteeseen, koska _____
   _____
   _____
   _____

Käännä →

4. Haluaisin, että ilmoitus kotiinkuljetuksen aikataulusta tehdään _____tuntia ennen kuriirin käyntiä:
   ☐ Soittamalla ☐ Tekstiviestillä ☐ Sähköpostitse

5. Haluaisin, että paketti toimitetaan kotiini klo _____välisenä aikana.

6. Mikäli kuriiri ei tavoita minua kotoa, paketti voidaan luovuttaa naapurilleni:
   ☐ Kyllä ☐ Ei

7. Mieluisin paketin noutopiste minulle olisi _____,koska
   _____
   _____
   _____

8. Pakettien toimituksessa kaikkein tärkeintä on _____
   _____
   _____
   _____

9. Asioidessani DHL Expressin kanssa arvostan eniten_____
   _____
   _____
   _____

10. Haluaisin kehittää DHL Expressin kotiinkuljetusta _____osalta siten, että _____
    _____
    _____

11. Tulevaisuudessa pakettien toimituspalvelun tulisi pitää sisällään _____
    _____
    _____
    _____

12. Avoin palaute: _____
    _____
    _____
    _____
    _____